

THE
AMERICAN JOURNAL OF PHARMACY.

APRIL, 1844.

ART. I.—REPORT OF THE COMMITTEE ON MERCURIAL PREPARATIONS, OF THE COLLEGE OF PHARMACY, NEW YORK.

THE standing committee of inspection, assisted by the Professor of Chemistry, and by certain members of the Board of Trustees, specially appointed to examine the various samples of mercurial ointment and blue pill mass to be found in this market, beg leave to report:—

That they collected from different venders, and not from the manufacturers themselves, the following specimens of those articles, all of which have been subjected to a rigorous examination by Mr. Lawrence Reid, Professor of Chemistry to the College, and the following results have been obtained:

1st. A specimen of mercurial ointment procured from Messrs. Rushton & Co., manufactured by Mander, Weaver & Mander, of Wolverhampton, England, imported by E. S. Inness, eight or nine months since, was found to contain *forty-six* per centum of mercury.

2d. Ointment procured from James S. Aspinwall, manufactured by George C. Close, within the last three months, was found to contain *thirty and a half* per cent. of mercury.

3d. Ointment procured from Adamson & Olliff, manufactured by George C. Close, about eight months since, and professing to be of the strength ordered by the Pharmacopoeia.

pœia of the United States, was found to contain *forty-three* per cent. of mercury.

4th. Ointment procured from Adamson & Olliff, manufactured by George C. Close, at the same time as the last specimen, and said by him to be ointment of his usual commercial strength, was found to contain *thirty* per cent. of mercury.

5th. Ointment procured from Olcott, McKesson & Co., manufactured by Southwick & Prior, of this city, was found to contain *twenty-one* per cent. of mercury.

The specific gravities of samples similar to the above, and indeed said to be taken from the same pots, were ascertained, at a temperature of forty degrees of Fahrenheit, in water. They were found to range from 1238 to 1900, agreeing very nearly with the relative per centages of mercury obtained by analysis from the different specimens of ointment.

It having been suggested by one of your committee, that the strength of ointment in the same jar might vary, by the general settling of the mercury, at the instance of Professor Reid three specimens were examined, samples being taken, by means of a butter-tryer, from the only three full jars to which your committee had convenient access. The instrument being passed from top to bottom, brought out a column of equal dimensions; this was divided into three equal parts, and each being separately examined, afforded the results expressed in table No. 2.

From the tendency of the mercurial ointment to settle, it would appear desirable that the vender, before dispensing it, should mix it again thoroughly from the bottom.

Eleven specimens of the blue pill mass were examined, and the following results obtained:—

No. 1. A specimen obtained from Rushton & Co., said to be manufactured by Mander, Weaver & Mander, contained *thirty-two* per cent. of mercury.

2. A specimen obtained from James S. Aspinwall, said

to be manufactured by Farr, Powers & Wrightman, of Philadelphia, contained *twenty-eight* per cent. of mercury.

3. A specimen imported by Morewood & Co., of this city, bearing the label of Davy, M'Murdo & Co., and supposed to be manufactured by them, contained *thirty-four* per cent. of mercury. This specimen appeared to be prepared with less care than any other, the mercury being less perfectly incorporated with the mass.

4. A specimen imported by Edward S. Innes, about eight months since, bearing the label of Mander, Weaver & Mander, and believed to be manufactured by them, was found to contain *thirty-three* per cent. of mercury.

5. A specimen imported by Cumming & Riach, manufactured at Edinburg, was found to contain *twenty-eight* per cent. of mercury.

6. A specimen imported by Cumming & Riach, from Messrs. Herrings, of London, contained *thirty-two* per cent. of mercury.

7. A specimen obtained from Olcott, M'Kesson & Co. manufactured by Southwick & Prior, of this city, contained *twenty* per cent. of mercury.

8. A specimen imported by Joseph A. Rea, of this city, contained *twenty-six* per cent. of mercury.

9. A specimen obtained from George D. Coggeshall, manufactured by George C. Close, several years since, contained *twenty-six* per cent. of mercury.

10. A specimen obtained from Adamson & Olliff, manufactured by Southwick & Prior, contained *twenty* per cent. of mercury.

11. A specimen obtained from Adamson & Olliff, manufactured by George C. Close, within the last three months, contained *thirty-one and a half* per cent. of mercury.

The specific gravities of these specimens of blue pill mass were taken in spirits of turpentine, but are not appended, being found to give no certain indication of the proportion of mercury contained in them.

The mercury contained in all the specimens was found to be of fair merchantable quality. Considerable difference was observed in the consistency of the various specimens of blue pill mass, but as far as the method of analysis pursued would admit, no article was found in any of the compounds which would exert an improper influence upon their medical effects.

Your committee beg leave to remark, that the variations in strength of both the above articles, offered for sale in this city, may lead to serious inconveniences in the results of their administration. But they are not inclined to attribute the deficiencies, in all cases, so much to a disposition to defraud, on the part of the manufacturers, as to a necessity imposed on them by many of the wholesale dealers, who are continually pressing them to furnish articles that may be sold at a less price than those could be which contain the full portion of the active ingredients prescribed by the Pharmacopœia. At the same time your committee wish to express the strong sense they entertain of the impropriety of sending out, for the use of the sick, preparations so discordant with the proper standard, and so insufficient in their strength. Manufacturers ought also, for their own interest, to refuse to comply with such proposals, for they must be aware, that frequently such articles are resold upon the credit of their respective names, and if one parcel should fall into hands capable of examining it, an imputation will be fixed on the maker which will not easily be effaced; or, if compelled to such a course, they ought to fix on each package an indelible mark expressing the real strength of the article therein contained.

It may not be out of place here to state, that sundry other preparations in this market are equally faulty with those already examined. Your committee particularly advert to the various Vegetable Alkaloids, Sulphuric Ether, Sweet Spirits of Nitre, Solution of Ammonia, Nitrate of Silver, and various essential oils, which are well known to be sold to

retailers at prices very far below what the cost to the maker would be, if of the requisite purity and strength. These your committee would recommend to be subjected to similar examinations, and the results made known, in hopes that an evil exerting so powerful an influence on public health and recovery from disease, may no longer baffle medical skill, and consign to neglect or oblivion medicines which have, until lately, been considered appropriate and valuable remedies.

Your committee cannot conclude without expressing their entire satisfaction with the great care, skill and perseverance which Professor Reid has evinced in conducting these very laborious examinations; for which he is, in their estimation, justly entitled to the thanks, not only of the members of this College, but to those of every one connected, in the remotest degree, with the practice of pharmacy or of medicine.

The foregoing specimens are all that your committee were able to obtain, after diligent inquiry among the venders of this city.

For the convenience of a ready examination of the results of the inquiries of your committee, and of the relative values of the different specimens, the following tables are subjoined:—

TABLE No. I.

Results of examinations of different specimens of Mercurial Ointment.

No.	PROCURED FROM	MANUFACTURED BY	PER CENT-AGE OF MERCURY.
1	Rushton & Co.	Mander, Weaver & Mander,	46
2	James S. Aspinwall.	George C. Close,	30½
3	Adamson & Olliff.	" " said to be of U.S. Pharmacopœia strength.	43
	" "	George C. Close, of his usual commercial strength.	30
5	Olcott, McKesson & Co.	Southwick & Prior.	21

TABLE No. II.

Results of examinations of three different specimens of Ointment, at different depths of the same jars, to ascertain the settling of the mercury therein.

No.	PROCURED FROM	MADE BY		Per cent. of mercury.	Average per centage.
1	Lawrence & Keese.	Southwick & Prior.	Upper stratum.	19.32	
2			Middle do.	20.77	
			Bottom do.	20.78	20.29
	Hull & Bowze.	George C. Close.	Upper stratum.	31.40	
			Middle do.	35.	
			Bottom do.	35.58	33.99
3	Olcott, McKesson & Co.	Southwick & Prior.	Upper stratum.	21.05	
			Middle do.	21.11	
			Bottom do.	21.62	21.26

TABLE No. III.

Results of analysis of Blue Pill mass.

No.	PROCURED FROM	MANUFACTURED BY	PER CENT-AGE OF MERCURY.
1	Rushton & Co.	Mander, Weaver & Mander.	32
2	James S. Aspinwall.	Farr, Powers & Wrightman.	28
3	" "	Davy, Macmurdo & Co.	34
4	" "	Mander, Weaver & Mander.	33
5	Adamson & Olliff.	In Edinburg.	28
6	" "	Herrings, of London.	32
7	Olcott, McKesson & Co.	Southwick & Prior.	20
8	Adamson & Olliff.	Imported by J. A. Rea.	26
9	George D. Coggeshall.	George C. Close.	26
10	Adamson & Olliff.	Southwick & Prior.	20
11	" "	George C. Close.	31½

All which is respectfully submitted.

CONSTANTINE ADAMSON, *Chairman.*

JOHN H. CURRIE,

WM. L. RUSHTON,

LAWRENCE REID,

OLIVER HULL,

AUG. WISEMAN,

HORACE EVERETT.

New York, February 6, 1844.

NEW YORK, Feb. 13, 1844.

Gentlemen:—

In compliance with your request, I beg leave to state, that the following methods were adopted to ascertain the per centages of mercury in Blue Pill and Mercurial Ungt.

The blue pill was washed with warm water, and also alcohol, to remove such organic matters as were soluble in these fluids; it was dried until it was of the consistence of a thick paste, then mixed with an equal weight of sulphuric acid,—the whole being heated until the remaining organic matter was decomposed and carbonised; the persulphate of mercury and carbonised matter so obtained were boiled with a solution of chloride of tin, to reduce the mercury; the precipitate was washed and dried, and the mercury separated by sublimation in glass tubes.

The mercurial ointment was treated with warm water, by which means the greatest part of the lard separated, floating on the surface of the water; it was then washed with a little alcohol to remove any water attached to it, and then triturated with hot spirits of turpentine, which displaced the remaining unctuous matters; then washed with warm alcohol twice, to cleanse it from the turpentine and grease: upon drying it at a temperature of about 90° the mercury will assume the form of globules, or may be made to do so by pressing it together.

Your most obedient servant,

LAWRENCE REID.

To the Committee of the College of Pharmacy, }
New York, on Mercurial Preparations. }

ART II.—ON OIL OF FIREWEED.

BY AUGUSTINE DUHAMEL.

Read at the Pharmaceutical Meeting, Feb. 5th, 1844.

AN oil distilled in one of the Western States, from the common fireweed plant, where it is known and much used, having been forwarded to a gentleman of this city as a remedy to cure his piles, has been handed to us for examination. A specimen is offered, for exhibition, to the College. In addition to a few observations upon some of its properties, the result of a cursory examination, a description of the plant, which is not generally known, taken from Torrey's Botanical Work, together with a dried specimen of the plant, is likewise offered.

Erethites præalta. E. hieracifolia.—Raf. Formerly the *Senecio hieracifolius* of Linnæus.—Somewhat hairy or glabrous; stem simple or paniculate above; striate-sulcate; leaves lanceolate-oblong, acute, unequally and sharply toothed or incised, tapering to the base, sessile; the upper often sagittate-auriculate [at the base, and partly clasping; involucre glabrous, subtended by small subulate-linear calyculate bracteoles; pappus copious and very white; corolla, 10-nerved; root, annual.

Habitat. Moist, waste places, Canada, and throughout the U. States; particularly abundant in recent clearings, especially in and around the spots where brushwood has been burned, whence the popular name of *fireweed*. It is a coarse weed, growing from 1 to 5 feet high, with the aspect of a *Sonchus*. It flowers from July to August.

The oil of fireweed, as presented, is in the form of a transparent greenish yellow colored fluid, with a strong penetrating herbaceous odor, and a feeble peculiar taste,

without pungency. Its spec. gr. is 0.927. It is volatile, and passes off wholly by heat. When inflamed it burns with much smoke, leaving a resinous residue. It is soluble in ether and alcohol, partially so in strong acetic acid, and only sparingly so in water.

Its principal use, thus far ascertained, has been in hemorrhoidal affections, in the dose of three drops on sugar three times a day. It does not, however, agree very well with the stomach, as experiments in two individual cases eventuated in nausea and derangement of the stomach.

ART. III.—OBSERVATIONS ON STEWART'S FORMULA
FOR HYDRARGYRUM CUM CRETA.

BY PETER LEHMAN.

Read at the Pharmaceutical Meeting, Feb. 5th, 1844.

IN the October number of the American Journal of Pharmacy, a formula for the preparation of Hydrargyrum cum Creta, was published by Mr. David Stewart, of Baltimore. In reading it over I was struck with the very large proportion of resin directed; and in order to test the matter tried it with one-half the amount there directed, and succeeded very well. I subsequently tried one-eighth of the quantity, and believe it fully adequate to extinguish the mercury in a short time. As the large quantity of resin in Mr. Stewart's process requires a proportionably large amount of alcohol for its subsequent removal, it is desirable to avoid its use. The following formula is proposed:—

Take of mercury,	- - -	℥iij.
resin,	- - -	℥vj.
prepared chalk,	- - -	℥v.
alcohol,	- - -	q. s.

Make a paste of the resin with a small quantity of the alcohol, then add the mercury, which may be extinguished in a very short time; add the chalk and alcohol gradually so as to keep up the pasty consistence, until done; then add sufficient alcohol to dissolve the resin, and wash the powder on a filter.

ART. IV.—ON ARISTOLOCHIA RETICULATA.

BY THOMAS S. WIEGAND.

A Thesis.

THE plant which forms the subject of this essay having lately been introduced into the market to a large amount, it was thought that an examination of it in comparison with the officinal article would be interesting.

ARISTOLOCHIA: *Sexual System*, GYNANDRIA hexandria.
Natural Order, Aristolochiaceæ.

Generic Character.—Calyx none. Corolla one petalled, ligulate, ventricose at base. Capsule six-celled, inferior. Willdenow.

There are many varieties of Aristolochia, as many as ten or twelve being enumerated by Dr. Wood, in the United States Dispensatory. Of all these but one has been adopted by the Pharmacopœia, and thus rendered officinal. This is the *Aristolochia serpentaria*; although there are four

varieties which indiscriminately furnish the article of commerce : these are the *Aristolochia hastata*, *hirsuta*, *reticulata* and *serpentaria*.

As this essay is designed to be a comparative examination, it is necessary to a proper comparison that both varieties be described.

A. serpentaria. This is an herbaceous plant with a perennial root, which consists of numerous small fibres, much interlaced, united to a horizontal head or caudex. Several stems often arise from the same root, and are about eight or ten inches in height: slender, round, flexuose, jointed at irregular distances; frequently of a reddish purple color at the base. The leaves are oblong, cordate, acuminate, entire, alternate, 3-nerved, supported on short petioles at the joints of the stems, and are of a pale green color.

The flowers, which are small, delicate, and purple, are supported on small peduncles and hang down, thus almost covering the flower in the earth and decayed leaves; the fruit is an hexangular capsule divided into six compartments, many-seeded. This plant is a native of Pennsylvania, New Jersey, Ohio, and Virginia. (*Wood and Bache's Dispensatory*.) It grows in light soil in forests.

It is met with in commerce in bales of one hundred pounds, of a color varying from yellow to reddish-brown, of a bitter and pungent taste, and camphoraceous odor. It is said to be adulterated sometimes with the roots of the *Panax quinquefolia* or ginseng. This must be by accident, as there could be no object for this adulteration, as the price of ginseng is equal to that of *serpentaria*. The roots of the *Collinsonia precox* are also used for this purpose, but this falsification is not met with in this country. The roots of the *Spigelia marilandica* are sometimes found intermixed, but the absence of the bitter taste will serve to distinguish them. In the "Dictionnaire des Drogues" it is

stated that the roots of the *Asarum virginicum* are found with it.

Aristolochia reticulata.—Nutt. From a woody knotted caudex, from which numerous radicles are given off, there arise numerous short stems sometimes branched near the roots. They are slender, round, flexuose, jointed, and slightly villous in the old, but densely pubescent in the young specimens. The leaves are oblong, cordate, large, obtuse, reticulated with very prominent veins, villous on both sides, more particularly upon the veins and short petioles. The flowers are small, purplish, and densely pubescent, especially at the base and in the germ. The capsule is hexangular, deeply sulcate, sprinkled with scattered hairs, and bears at its apex the decayed corolla.—*Dr. Bridges', Amer. Jour. Pharm.* VIII., 118.

This plant is a native of Arkansas, and brought from the neighborhood of the Red River. The roots differ from those of the officinal, in the filaments being coarse and less frequently interlaced. The odor and taste the same, but stronger.

In commerce it is found in bales from one to three hundred pounds, with many of the stems and leaves intermixed, for the most part free from foreign substances. It is sometimes done up in small bundles, and in this state the filaments are much less interlaced.

The root of the *A. serpentaria* has been analysed by Bucholz, in 1820, Chevallier, in 1823, and Pischier, in 1824. The first of these obtained in one hundred parts,

Volatile oil,	-	-	-	.05
Extractive,	-	-	-	1.7
Woody fibre,	-	-	-	61.4
Yellow green resin,	-	-	-	2.85
Gummy extract,	-	-	-	18.1
Water,	-	-	-	14.59

Chevallier, whose analysis is more complete, obtained somewhat different results. His analysis is as follows:—Volatile oil, a yellow bitter principle soluble in water and in alcohol, resin, gum, fœcula, woody fibre, albumen, malic and phosphoric acids, partly combined with potassa, and a trace of iron.

The volatile oil, which is the most interesting of these ingredients, exists in very small proportion,—only half an ounce having been obtained by Grassman (*quoted by Pereira*) from one hundred pounds of the root.

The volatile oil may be obtained by distilling the root with a solution of chloride of sodium; and it comes over mixed with the water, rendering it milky. Bigelow states that this water, upon standing, deposits crystals of camphor. The oil of course has the smell and pungent taste of the root.

The succeeding experiments were designed merely to see whether the analogy, which is so striking between the congeners of this tribe, was carried out in respect to the *Aristolochia reticulata*. To do this satisfactorily, it was necessary to institute experiments on the *Aristolochia serpentaria*, as well as the *A. reticulata*.

The first series of experiments relate to the *A. serpentaria*; the second to the *A. reticulata*.

1st. An infusion was made of the strength of one ounce of the root to eight of water, by boiling for ten minutes; this yielded, upon the addition of tincture of iodine, the blue color of iodide of starch.

2d. A portion of the same infusion was filtered, and to the clear infusion a solution of the subacetate of lead was added, which produced a copious flocculent precipitate, showing the presence of gum.

3d. A cold infusion, which was made by displacement, of the strength of half an ounce of the root to eight ounces of water, yielded, upon the addition of a solution of ferro-

cyanate of potassa slightly acidulated with acetic acid, a slight cloudy precipitate, showing the presence of albumen. Resort was had to the test of ferrocyanate of potassa owing to the presence of phosphoric acid in a free state, which would prevent the usual test (the corrosive chloride of mercury) from discovering the albumen.

4th. A cold infusion was made by displacing an ounce of the root, and this was then evaporated to dryness. The gummy extract thus obtained possessed the bitter taste of the root, but in a less degree than obtained by distilling the alcohol and oil from the tincture. It was less in amount than that obtained from the tincture.

5th. The tincture was made of the strength of one of root to eight of alcohol; when water was added to the tincture it gave to it a milky appearance, indicating the presence of resin; but this was not satisfactory, as the presence of oil would also produce the same effect: it therefore became necessary to prove to which of these, or whether to both, this was owing. This state of things made the succeeding experiment necessary.

6th. A tincture was made by displacing one ounce of the root with alcohol; this was then distilled to remove the volatile oil and alcohol: this was continued until it was of such consistence as to render its removal from the retort necessary, when there was left behind a reddish or yellowish-brown resin of tough and sticky consistence, possessed of a bitter and pungent taste,—the latter owing to a portion of the volatile oil which remained.

7th. A portion of the root was placed in a copper still, and covered with a solution of chloride of sodium; this was then boiled, and the water which was distilled over not being so milky as was desirable, it was submitted to the operation again with but little better success; the water had the smell and warm taste of the root,—the smell being much stronger than the taste.

8th. Some of the root was incinerated, and the ashes thrown into water, so that any potassa which was present might be dissolved out: to this solution dilute nitric acid was added and then evaporated to dryness. Crystals possessing the taste of nitrate of potassa were obtained.

1st. An infusion of *Aristolochia reticulata* was made, of the same strength as that of the *Aristolochia serpentaria*, and yielded, when the tincture was added, the blue color of iodide of starch.

2d. The same infusion was filtered, and on having the solution of subacetate of lead added to it, gave the same precipitate as the *Aristolochia serpentaria*, but rather more abundant.

3d. A cold infusion was made by displacement, of the strength of half an ounce of the root to eight ounces of water; this yielded, when an acidulated solution of ferrocyanate of potassa was added, a slight precipitate upon standing over night.

4th. A cold infusion was made by displacing an ounce of the root, and then evaporated to dryness. The gummy extract thus obtained was possessed of the bitterness of the root, but less so than that obtained from the tincture by the distillation of the alcohol and oil. It was greater in amount than that obtained from the *Aristolochia serpentaria*.

5th. The tincture was made of the strength of one ounce of the root to eight ounces of alcohol; and when water was added to this, a milkiness similar to that observed in the *Aristolochia serpentaria* was visible; but this, for the reason before given, was not to be relied on, and consequently the following experiment became necessary.

6th. A tincture was made by displacing an ounce of the root with alcohol; it was then placed in a retort, and the alcohol and oil distilled off; a resin was obtained having the same color and taste as that obtained from the *Aristolochia serpentaria*; not so much in amount, but of firmer

consistence. It was greater in amount and possessed of the taste and smell of the root more strongly than the residuum left from the evaporation of the infusion by displacement with water.

7th. The roots of the *Aristolochia reticulata* were placed in a copper still and covered with a solution of chloride of sodium; this was then subjected to heat until the root was deprived of the warm pungent taste so peculiar to it, thus denoting an absence of the oil: the water which passed over was rendered milky, and upon its surface globules of oil were seen floating; the oil was of a greenish-yellow color, and possessed the odor and pungent taste of the root in a high degree. The amount of oil was so small that it was impossible to obtain it in a separate state.

8th. A portion of the root was incinerated, and the ashes obtained were placed in water, so that any potassa which was present might be solved out; the solution was filtered, and to the clear liquor dilute nitric acid was added; this was then evaporated to dryness, when there was left a number of crystals possessing the taste of nitrate of potassa.

We may, from the foregoing experiments, state the constituents of these two roots to be the same; the only difference being in the amounts of the various principles they contain: thus, gum, extractive matter, and volatile oil are contained in greater amount in the roots of the *Aristolochia reticulata* than in those of the officinal article.

In the amount of the volatile oil which the roots of the *Aristolochia reticulata* contain, the most marked difference in chemical composition exists; and it is rather a subject of congratulation that as, the supply of the officinal article has failed, that article which is sold as a substitute is not only equal but even superior to that which it is to replace.

The sixth experiment of the *Aristolachia reticulata*, and the fourth of the *Aristolochia serpentaria*, show us that the tincture is the preferable form of exhibition, as it contains all the active principles of the root in solution. This last remark will apply when the full effects of the medicine are desired, as the infusion is the form of exhibition preferred by Pereira.

ART. V.—REMARKS ON COLD CREAM.

By LAWRENCE TURNBULL.

Read at the Pharmaceutical Meeting, February 5th, 1844.

Take of white wax,	-	-	3j.
oil of almonds,	-	-	f3iv.
rose water,	-	-	f3ii.
borax,	-	-	3ss.
oil of roses,	-	-	Mv.

Let the wax be dissolved in the oil of almonds by a gentle heat, so as not to change it; then dissolve the borax in the rose water, and add the solution to the heated oil, stirring constantly until perfectly cool; then add the oil of roses, stirring it a little longer. If properly prepared it yields a beautiful preparation of a snow-white color, and without any appearance of granulations. The borax unites to form with the oil a mild and bland compound, by chemical union.

ART. VI.—FORMULA FOR THE PREPARATION OF SYRUP
OF CHAMOMILE.

Presented to the Pharmaceutical Meeting, February 5th, 1844.

BY EDWARD PARRISH:

Take of chamomile flowers in coarse powder, one ounce.

“ cold water, twelve fluid ounces.

“ refined sugar, in coarse powder, twenty ounces.

Make an infusion, by the displacement process, of the chamomile flowers and water. Remove the residue from the apparatus, and place the coarsely powdered sugar in its stead : on this pour the infusion until it is entirely dissolved.

The dose might be stated at a table spoonful.

ART. VII.—ON EXTRACTS OF SPIGELIA.

BY THOMAS ESTLACK.

Extract from Thesis.

A CLASS of pharmaceutical remedies has of late been introduced into this country, designated fluid extracts. Preparations of a similar character have long been in use in England, under the name of concentrated essences, and concentrated infusions, which appear to be similar in character to our fluid extracts, with the exception of containing less sugar, and, of course, being of thinner consistence. The

directions which accompany these essences, indicate that one part to seven is requisite to form a portion of the ordinary strength of a decoction.

The difference between our climate and theirs may account for the necessity of our using a greater quantity of saccharine matter for the preservation of the fluid extract.

Every improvement which can be made in the mode of administering remedies, by diminishing the dose, and rendering that palatable which was before nauseous and disagreeable, is some contribution to the general stock of knowledge. The fluid extracts may unquestionably be valuable remedial agents, when properly prepared; and if some of those who first introduced them to notice, had not chosen to conceal their ingredients under the comprehensive title of compounds, as well as their mode of preparation, the charge of empiricism and quackery would no doubt have been spared, and the preparations would have claimed the confidence of physicians; as is the case with the fluid extracts of Sarsaparilla, Senna, &c., since the publication of formulas. It is not unusual for the apothecary to find himself constrained either to vend remedies thus introduced, involved in mystery as to their composition, or to institute experiments, and, by the application of correct pharmaceutical principles, to endeavor to obtain a remedy which shall be entitled to the confidence of the physician.

The *Spigelia Marilandica* has long been ranked as one of the best vermifuges introduced. The worm tea of the shops—notwithstanding the quantity necessary to be taken renders it objectionable—enjoys still a confidence which the numerous substitutes have not been able to destroy.

The Compound Fluid Extract of *Spigelia* supplies this defect, and affords at once an active and safe remedy, combined with uniformity of strength and pleasantness of taste.

The following is the formula which I propose for its preparation, viz.:

R. Rad. Spigeliæ Contus.	℥iv.
Sennæ Alexandriæ,	℥iij.
Fol. Sabinæ,	℥j.
Mannæ,	℥j.
Sacch. Alb.	℥viiij.
Alcoholis,	Oss.
Aquæ Bullient.	Oij.

Upon the spigelia, senna, and sabina, finely bruised, pour the boiling water, and cover over until cool. Then add the alcohol, and set it aside to macerate for 24 hours; transfer to a displacement filter, and having displaced the tincture, carefully evaporate, at a low heat, to f. ℥xii., in which dissolve the sugar and manna, and again evaporate to Oj. Each fluid ounce will contain the strength of ℥ij. of spigelia, and ℥iss. of senna. A teaspoonful will represent 15 grains of spigelia, which is the medium dose for a child from eight to twelve years of age.

The omission of the sabina might, by some, be esteemed an improvement. The quantity, however, is small, and it can do no injury.

The solid extract is prepared from the decoction; the strength of which may be known by its sensible properties. As it is desirable to obtain this as strong as possible, and as great heat has a tendency to injure the extract, it should be evaporated, by means of a water-bath, to such a consistence as to form a firm pill mass when cold. Thus prepared, it is of a deep brown or black color, and has the bitter taste and smell of pink root. In order that it may keep well, it should be placed in porcelain jars, and protected from the air.

To be given in form of pills, of five grains each; dose, three pills, to be taken one hour before each meal, to be repeated for several days, and followed by a dose of senna and manna.

ART. VIII.—SOME EXPERIMENTS UPON THE REACTION THAT TAKES PLACE BETWEEN THE SULPHATES OF SOME OF THE ORGANIC ALKALIES AND IODIDE OF POTASSIUM.

By S. LEWIS, M. D. AND THOMAS J. HUSBAND.

SIXTY grains of the sulphate of quinia and an equal quantity of the iodide of potassium were thrown into four ounces of boiling water, and boiled for a few minutes. A tenacious substance was immediately formed, and floated on the surface of the liquid; this was collected and the remainder set aside. When cold, there was a further coating of the above matter on the surface of the fluid, and some deposited, also, on the sides and bottom of the vessel. This substance was carefully washed and dried by a gentle heat; it weighed fifty-four grains, and presented the following characteristics:—It has an extremely bitter taste, is of a light straw color, uncrystallizable, very soluble in alcohol and ether, cold water dissolves it sparingly, soluble in about forty parts of boiling water.

To ascertain the changes that had taken place, the remaining liquor was evaporated to dryness, and treated with several successive portions of absolute alcohol. The undissolved portion, when collected and examined, proved to be the sulphate of potassa, and weighed twelve grains. The alcoholic solution, being non-concentrated by evaporation, deposited a considerable quantity of saline matter and iodide of potassium. The evaporation continued to dryness, and the dry matter treated with water, and this evaporated to dryness, yielded a further portion of iodide of potassium; the whole weighing thirty-three grains. What remained after this last treatment with water presented the

same properties as the first product, weighing three grains, which, added to that, made fifty-seven grains.

From these results it is quite apparent that a perfect decomposition of the sulphate of quinia and a *part* of the iodide of potassium took place, resulting in an hydriodate of quinia and sulphate of potassa. The excess of iodide of potassium in the solution is found requisite for the success of the process, as a perfect decomposition of the sulphate of quinia did not take place when only the quantity indicated by the equivalents were used.

In further proof of the formation of the hydriodate of quinia, it was treated with acidulous sulphuric ether and exposed, to favor evaporation, when iodine was set free and deposited on the upper part of the vessel, and a flocculent precipitate of the sulphate of quinia appeared in the ether. It is decomposed by the strong and dilute mineral acids setting the iodine free, as shown by the starch test. Similar combinations were formed by means of the sulphates of morphia and veratria. The former is in very delicate, white, feathery crystals, and the latter in transparent yellowish scales. All of these salts are affected by exposure to the direct rays of the sun, the iodine being slowly evolved.

The composition of the hydriodate of quinia may be inferred, from what has been said, to be a dihydriodate. Thus, sixty grains of sulphate of quinia, being about the one-seventh of its equivalent, would require one-seventh of an equivalent of iodide of potassium, or about twenty-four grains, to enable the hydriodic acid to replace the sulphuric. As no free potassa or quinia was found in the solution, it follows that the whole of the potassium and sulphuric acid must have left their original combinations, yielding twelve grains, or about one-seventh of an equivalent of sulphate of potassa; the hydriodic acid and quinia pre-

serving the same relative proportions as in the sulphate of quinia, *i. e.* one of acid and two of quinia.

To ascertain whether a monohydriodate of quinia could be formed, the following experiment was performed at the suggestion of our friend Professor Bache,—one-fortieth part of the combining proportions of the substances being used; thus, disulphate of quinia, eleven grains; sulphuric acid, one grain, ($\frac{9}{40}$ ths;) water, an ounce, were boiled several minutes. Litmus paper showed the presence of free acid. To this was added iodide of potassium, eight grains and a half, and boiled again. When cold, hydriodate of quinia, as a tenacious mass, was deposited on the sides and bottom of the vessel. The mother water, still having an acid reaction, being poured off and evaporated to dryness, and treated with absolute alcohol, left undissolved a portion of sulphate of potassa. The alcoholic solution, evaporated to dryness, yielded several grains of iodide of potassium. Although the relative proportions in this experiment were such as to neutralize each other and produce a mono-salt of quinia, the undecomposed iodide of potassium obtained from the solution proves that the two equivalents of quinia in the sulphate united with but one equivalent of hydriodic acid derived from the iodide of potassium,—the free sulphuric acid still remaining uncombined.

ART. IX.—THE ELAÏOMETER.

(An Instrument for detecting the Adulteration of Olive Oil.)

By M. Gobel.

THE price of olive oil is sufficiently high to lead to its admixture with cheaper oils. The oil of poppy-seeds is that which is usually employed for this adulteration, as it has the advantages of being cheap, of having a sweet taste, and very little smell.

Several methods have been proposed for detecting this fraud. Messrs. Soubeiran and Blondeau, who tried all the different processes for this purpose, found that the method founded on the difference in the degrees of viscosity in olive oil and oil of poppy-seeds, and the method of Poutet, afforded the most certain indications as to the purity of olive oil.

The first of these processes consists, as is known, in putting the suspected oil into a bottle, and introducing bubbles of air into the oil by shaking the bottle. When the olive oil is pure, the bubbles disappear as they rise to the surface of the liquid; whereas they continue for some time if the oil be mixed with oil of poppy seeds. But this method can only be applied in cases where at least a tenth part of poppy oil has been added.

Poutet's process consists in mixing the oil with a twelfth of its weight of a solution of mercury, made in the proportion of six parts of mercury to seven and a half parts of nitric acid, sp. gr. 1.35; the solution of the mercury is allowed to take place spontaneously, and is then used immediately. The mixture should be shaken every ten minutes during a period of two hours; it is then to be put into a cold cellar, and in twenty-four hours afterwards its

consistence is to be observed. Messrs. Soubeiran and Blondeau recommend, in estimating the consistence of the solidified oil, to strike its surface with a glass rod; and they apply the term *sonorously firm* to oil which becomes sufficiently solidified to afford a manifest sound, on percussion; they apply also the terms *firm, rather firm*, having the *consistence of suet, soft consistence, the consistence of congealed oil*, to those samples of oil which acquire a consistence more or less solid.

By neither of these methods is it possible to determine with certainty the presence of poppy oil in oil of olives, unless the sample contain at least one-tenth of the former.

Of these two processes, that of Poutet is undoubtedly the best; and yet this, according to the above named chemists, is, in many respects, deficient. Thus, not only does it fail to determine the proportions in which the two oils may be mixed, but it offers the great inconvenience of requiring the employment of a re-agent immediately after it has been prepared, of occupying a considerable length of time, and of requiring a certain expertness of manipulation; for the solution of the mercury in nitric acid, resulting from the spontaneous action of these two bodies, is not so uniform in its composition as to ensure always the same effect. This re-agent sometimes fails to produce the expected effect, and it is remarkable that when this takes place, the solution does not crystallize after standing for a day. Messrs. Soubeiran and Blondeau recommend that no account should be taken of the experiments, if the remainder of the solution which has not been used is found not to have crystallized; and in all cases to repeat the process so as to guard against errors.

My process is performed in a very much shorter time than that of Poutet; it usually occupies only a quarter of an hour. It affords indications of the smallest quantity of

oil of poppy seeds, when mixed with olive oil, and of the proportions in which these two are present.

This process consists in the use of an instrument which I have called the *elaiometer*, the construction of which is founded on the difference between the densities of olive oil and oil of poppies. This instrument is an *areometer*, having a large bulb surmounted by a very small tube. In consequence of this construction, the instrument is one of extreme sensibility. It is graduated so that at a temperature 10° Reaumer, or 12.5° C. (55° Fahr.) it rises to 0 in pure oil of poppy-seeds, this being the greatest density indicated; and to 50 in pure olive oil, this being the least density indicated. The interval between 0 and 50 is divided into fifty equal parts. The 0 is marked at the bottom of the stem, and the 50 at the top.

I have graduated the instrument at a temperature of 55° Fahr., because this is the usual temperature of the cellars in which the oil is kept.

If, on immersing the instrument at 55° Fahr., the stem sinks to the point marked 50, it may be inferred that the oil is pure; but if, on the other hand, it does not reach this point, the inference will be that the oil is mixed.

If the instrument stands at 40, this number multiplied by two, will give the quantity of pure olive oil present in 100 parts; the sample, in this case, being mixed with twenty per cent of oil of poppy-seeds. In like manner, any other number below 50, at which the instrument floats, will, by the same process, indicate the amount of adulteration.—*Lond. Pharm. Jour.*, from *Jour. de Pharm.*

ART. X.—ON THE SOLUBILITY AND SOME OTHER PROPERTIES OF SULPHATE OF POTASH.

By Mr. THEOPHILUS REDWOOD.

THE recent case of poisoning with sulphate of potash, has caused the attention of medical men and others to be directed to the medicinal effects and chemical properties of this salt. The subject was noticed at the last evening meeting of this Society, and several communications respecting it have appeared in the journals within the last few weeks. The deleterious effects which have sometimes ensued on administering the salt in doses of two drachms or more, have been ascribed, by some persons, to its sparing solubility; by others, to this—in connexion with the angular form of the particles of which it consists, when reduced to powder.

Authors differ materially with regard to the extent of solubility of sulphate of potash in water. According to Turner and Phillips, it requires sixteen parts of water for its solution at 60° ; Brande says, sixteen parts of cold water; Murray, seventeen parts of water, at 60° ; while Gay Lussac, whose statement appears to be adopted by Graham and Kane, describes it as soluble in nine parts of water, at 60° Fahr.

It was mentioned in this room by Mr. Gallard, at our last meeting, that the solubility of sulphate of potash in water, may be increased by the addition of a portion of sesquicarbonate of soda—a circumstance which was at the same time ascribed to the formation of new salts in the solution. The correctness of this fact and its explanation has, however, been since denied in a letter published in the Medical Gazette of October 27th, by Mr. Mowbray, who says, that sulphate of potash is not more soluble in solution

of carbonate of soda than in distilled water; he also observes, that "every chemist will smile when he is informed that sulphate of potash might be decomposed by carbonate of soda."

The opinions thus expressed are so much at variance, and the experiments by which the questions at issue may be determined, are so simple and easy of execution, that there would be no excuse for our remaining in doubt with regard to them, especially as they are considered to have some bearing upon the safety of the administration of a somewhat popular remedy. Moreover, it is desirable that every pharmacist should be capable of determining points of this description, both for his own satisfaction and for the information of others. I propose, therefore, in giving the result of my experiments, to describe the manner in which they were performed, and to point out the precautions which are necessary in order to arrive at correct results.

The specimen of sulphate of potash employed in these experiments, was in well-defined crystals, which formed a clear solution in water. This solution was neutral to litmus paper; and, on being tested with sulphuretted hydrogen, nitrate of silver, and the usual tests for the presence of nitrates, afforded no indications of impurity.

Exp. 1.—To determine the degree of solubility of this salt, a portion of it was reduced to fine powder, and sixty grains of this was put into a vial, furnished with a good cork. This was now accurately counterpoised in the balance. A pneumatic trough, containing about a gallon of water, at a temperature of 60° Fahr., was provided, and this water was kept constantly at the same temperature. Distilled water was now added to the salt contained in the vial, the solution of which was promoted by agitation, while the temperature was regulated by [the immersion of the bottle in the pneumatic trough. When the salt was

nearly all dissolved, the further additions of distilled water were made very gradually, and care was taken to preserve the temperature precisely at 60° . The solution being completed, the vial with its contents was weighed, and it was found that 698 grains of water had been added to the salt.

Exp. 2.—A similar quantity (60 grains) of the same specimen of sulphate of potash, was put into another vial, together with thirty grains of sesquicarbonate of soda. The solution of these salts was effected in the same manner as in the previous case; and it was found that 528 grains only of water was required for the solution.

Exp. 3.—Into another vial was put 60 grains of sulphate of potash and 30 grains of bicarbonate of potash; and, the solution being effected as before, 805 grains of water was found to have been required for that purpose.

Exp. 4.—On dissolving 30 grains of the specimen of sesquicarbonate of soda, used as above, it was found to require 352 grains of water for its solution; and the same quantity of the bicarbonate of potash took 105 grains of water for its solution.

In all these cases a period of six hours was occupied in effecting the solution.

Thus, then, it, appears, that in operating as described above, one part of sulphate of potash requires 11.63 parts of water for its solution at 60° ; whereas, one part of sulphate of potash, mixed with half its weight of sesquicarbonate of soda, is soluble in 8.74 parts of water at the same temperature. It appears also that whilst the presence of sesquicarbonate of soda increases the solubility of sulphate of potash, a contrary effect is produced by the presence of bicarbonate of potash, the same amount of water being necessary in the latter case, as the two salts would require for their solution separately.

The state of aggregation of sulphate of potash appears to influence its solution very considerably.

Exp. 5.—On adding one part of sulphate of potash in crystals to fourteen parts of water, kept at a temperature of 60° , the solution was not effected in three days, although the vial was frequently agitated; and it was found necessary to add two more parts of water to complete the solution. This fact will probably account for the statement of some Chemists, that sulphate of potash requires sixteen parts of water for its solution.

Exp. 6.—Considerably more sulphate of potash, *in powder*, was added to distilled water, than the latter was capable of dissolving. After keeping the mixture for several hours at 60° , the solution was found to contain one part of salt to 9.5 parts of water. This very nearly accords with Gay-Lussac's statement.

The difference between the results in *Exp. 1* and *Exp. 6* appears to arise from the fact, that the particles of which the powdered sulphate of potash consists, are not all of equal dimensions. On adding a portion of this powder to water, as in *Exp. 1*, the smaller particles are first dissolved, and when the solution has nearly attained its point of saturation, the solvent power of the liquid becomes incapable of overcoming the molecular attraction of the remaining particles. This solution, however, although incapable of dissolving the larger particles, would still take up a farther quantity of the salt in a state of minuter division, as occurs in *Exp. 6*.

There can be no doubt, I presume, that the increased solubility of sulphate of potash when mixed with sesquicarbonate of soda, arises from the partial decomposition of these two salts, which is quite in accordance with what occurs in many analogous cases. Thus, it has been found, as noticed by Mr. Richard Phillips, that sulphate of barytes may be decomposed by carbonate of potash. Sulphate of strontian is also subject to a similar decomposition.

When two salts, having different acids and bases, are mixed in solution, a partial decomposition of each is frequently effected, so that four salts instead of two will be present. Some Chemists, as Berthollet, have considered that this partition of acids and bases takes place in all cases where salts in solution are mixed ; but of this there is no sufficient evidence. Changes of color and changes of solubility are almost the only means we have of determining the point ; so that every fresh observation, with reference to these effects, is so far of importance.

That decompositions are effected in sulphate of potash, as well as in other salts, in opposition to what is conceived to be the prevailing power of affinity, is certain. Thus, on digesting sulphate of potash in nitric acid, with a slight degree of heat, nitrate of potash is obtained ; and yet sulphuric acid, under other circumstances, expels nitric acid from its combination with potash. Hydrochloric acid is also capable of decomposing sulphate of potash ; and even tartaric acid, if added to a concentrated solution of sulphate of potash, is precipitated in the form of bitartrate of potash. In these cases the decomposition is only partial ; so also is that which takes place on adding carbonate of soda to sulphate of potash. In the latter case, sulphate of soda and carbonate of potash are formed to a certain extent ; and as sulphate of soda is more soluble than sulphate of potash, the solution of the latter will be promoted by the admixture of carbonate of soda, in proportion to the greater solubility of the newly-formed salts, and to the extent to which double decomposition takes place.

London Pharm. Journal.

ART. XI.—ON THE GALLS OF TEREBINTHUS AND PISTACIA. By M. GUIBOURT, Professeur de l'Ecole de Pharmacie, Paris.

IN the circuit of the medical jury of the department of Eure, made by M. Ledanois in conjunction with MM. Richard and Gonillart, a pharmacien of Bourghéroulde presented to the jury a substance, the nature and origin of which he was ignorant of, having found it in the stock of his predecessor. This substance, which was broken, had the appearance of a fragment of a dried pericarp. The color was reddish grey, it had no odor, but a very astringent taste. M. Ledanois analysed it, and found its composition to be as follows :—

Gallic Acid	-	-	-	-	15
Tannic Acid or Tannin	-	-	-	-	60
Soft Resin or Turpentine	-	-	-	-	4
Caoutchouc	-	-	-	-	1
Inert residue	-	-	-	-	20
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					100

A portion of this substance having been sent me by M. Ledanois, I replied at first that it resembled the gall of the terebinth, mentioned by certain ancient authors, but having found in my own stock two other analogous galls, one of which coincides better with the gall of the terebinth, I think it right to recapitulate here the short descriptions which have been given of this substance, to describe the characters of that which I possess, and to request those persons who may have a better opportunity of identifying its origin, to publish the information in a scientific journal.

We find in the *Observations* of Lobel (page 538, fig. 2,) in the *History of Rare Plants*, by Clusius (page 15,) and

in the *History of Plants*, by Bauhin (lib. iii, page 279,) one only and the same figure of the terebinth (*Pistacia Terebinthus*,) having, at the extremity of the branch, a gall formed like a horn, lengthened and contorted, which so exactly represents one which I possess, that the origin of this appears to be well defined; but this gall is not the one found with the pharmacien of Bourghéroulde. This horn-shaped gall, however, is not the only one which the terebinth can produce, for Clusius himself mentions another *vesicular* one, adhering to the leaves and to the branches, nearly similar to that of the leaves of the elm. Again, J. Bauhin mentions having observed frequently on the terebinth an excrescence similar to a leathern bottle (*oultre*), like that of the elm, and at other times, at the extremity of the branches, reddish horns from four to six inches long, of a cartilaginous substance, and containing a viscid humour, in which are contained small aphides (*pucerons*.)

According to the monks, editors of Mésué, the terebinth bears two different fruits, and probably three. The first does not ripen, the second is developed in bunches, and becomes larger than that of the lentisc. The last, if we may be allowed to give it this name (we allude to the galls,) is constituted like the bladders of the elm, though different in form and color, for the former are lengthened, depressed, and in the form of a goat's horn, whence the tree has taken the name of *cornucapra*; the latter are round like apples, or oblong like plums, and of all these varieties, some are partly white, partly red, others are lemon-colored and white, others, again, greenish. All, when ripe, are filled with aphides (*pucerons*.)

According to Bélon, the peasants of Thrace and Macedonia collect the galls of the terebinth about the end of June, under the leaves or at the foot of the branches which bear the fruit, and there they find a small gall the size of a hazel nut, which, if allowed to grow, would become long like a

small horn, but they gather it while very small, and sell it at a high price to dye fine silks in the town of Pruse (*Singulariter*, book i., c. 65.) They use annually above 6000 pounds of these galls. They are hollow within, of the size of small Roman galls, growing on the leaves of the male terebinth. When they are not gathered, they grow half a foot long, and horn-shaped (*ibid.* book iii., c. 49.) Bélon, as it would appear, believes that all the galls of terebinth form one species, and that they only differ from their age; but it is probable, as is the case with the galls of the oak, that different parts of the terebinth may be impregnated by different insects, and produce galls quite distinct. I do not pretend to conclude from this that the three galls which I possess are due to the terebinth. I believe them, on the contrary, to be produced by a different tree.

Lobel, whom I have already quoted, has published two other figures of *Pistacias*, with horn-shaped galls. One of these (*Observations*, page 539,) borrowed from Dodonæus, is given as a pistacia, and the gall in fact resembles that of the pistacia, but the tree appears to me to be a *Terebinthus*. The other figure, much better done, is found in the *Adversaria*, p. 12. This tree is a true pistacia (*Pistacia narbonensis*, L.) bearing two sorts of galls, one in the form of a spindle, nearly straight and lengthened to a point at the extremity; the other, short, angular, rounded, and double. The spindle-shaped or horn-shaped gall, is very probably the second sort which I have to describe, and the small double gall is perhaps the young state of the third sort to which belong the galls of the pharmacien of Bourghéroulde. After having thus established, as far as it is possible, the origin of these three galls, I proceed to describe them.

1st sort: Horn-shaped Gall of the Terebinthus.—Represented in the *Observations* of Lobel, page 538, and in the *History of Rare Plants*, by Clusius, page 15. This gall has the form of a long and flattened vesicle, enlarged at

the middle, and tapering to a point at each extremity. It is generally folded back upon itself, near the peduncle, and often bent in the contrary direction, near the opposite points, so that the gall is *bistorte* (twice bent.) I possess one specimen entire, 7 centimetres long, by 17 millimetres broad, and several large specimens not entire, from 30 to 35 millimetres broad, the length of which might have been from 16 to 18 centimetres. This gall has a decided red color, especially externally, it is pretty regularly striated longitudinally, *smooth*, only a millimetre thick, and empty internally, except a small quantity of the exuviae of insects. The substance of the gall is compact, rather translucent, mixed with white woody fibres, which reach from one extremity to the other. It is loaded with a resinous juice, which exudes in places outside or inside. It has a very astringent taste, slightly aromatic, similar to Chio turpentine, and this character is so manifest, that it is sufficient to prove that the gall in question belongs to the genus *Terebinthus*. Lastly, it must be observed, that this gall, being formed by a puncture on a terminal bud, is always simple and terminated by a single point.

2d sort: Horn-shaped Gall of the Pistacia.—This gall appears to me to be represented in the *Adversaria* of Lobel, page 412. It is from 4 to 6 centimetres in length, from 8 to 15 millimetres in breadth, more or less bent, and terminated by a sharp point. It is tortuous in its length: it is covered with a dark grey epidermis, and has sometimes on its surface small flat and circular glands, from which a yellow resin exudes. The substance of the gall is quite black, light, fragile, and from $\frac{1}{4}$ to $\frac{1}{2}$ a millimetre thick. The taste is simply mucilaginous with an aromatic flavor. This gall is entirely without astringency.

3d sort. Cauliflower-gall.—Before receiving the specimen from M. Ledanois, I possessed an entire gall and a fragment of this sort, which must result from the monstrous de-

velopment of a flowering bud, still retaining at its base vestiges of scales impregnated with a resinous juice. From the base, the pierced bud appeared to divide into three or four branches, each bearing a gall; but of these galls there only remain one entire, and a portion of a second. The entire gall, in rising from the peduncle, is enlarged rapidly into a fan-shape, and separates itself near the middle in two unequal parts, on which are prominent points indicating other divisions less marked, or more completely merged and confounded. The greatest length of the gall is forty-seven millimetres, and its maximum breadth thirty-two. This gall, when fresh, must have been covered with a yellowish down, which remains in the hollow places, while the prominent parts have become brown and polished by friction. The substance of the gall is rather more than a millimetre in thickness, whitish, and translucent in its fracture, and so compact and gorged with juice, that it presents, when cut, the appearance of a dried gum-resin. It has no reticulated exudation, and possesses a very astringent taste, without any resinous flavor or smell.

The gall fragment, which was sent me by M. Ledanois, only differs from that which I have just described, by its uniform dull greyish-red colour. It has the same yellowish down on the exterior—the same compact, translucent, and whitish substance within, and the same astringency, without aromatic or resinous taste. Some small entire galls which are with it, resemble the small angular excrescences in the figure of Lobel (*Adversaria*, p. 412;) however, they differ from the black horn-shaped gall above described (the 2d sort.)

It is evident that this third gall is the most important of the three, from the large proportion of tannin which M. Ledanois has found in it. It is to be regretted that it is so rare, and so little known.

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ART. XII. ON THE BEHAVIOUR OF THE ANTIMONIATE OF POTASH TOWARDS THE EARTHS.

By M. WACKENRODER.

FROM my examination of the applicability of antimoniate of potash as a test for soda, I was led to investigate its behaviour towards the alkaline earths, and also towards albumina; since from the frequent occurrence of the three latter bases in salts of potash and soda, the value of the antimoniate of potash as a test would be considerably diminished, if we remained unacquainted with its behaviour towards salts containing these earths.

The following are the results of my experiments. I need only add that the strength of the solutions were the same as employed in my former investigation.

Salts of Barytes.—Antimoniate of potash produces, in a solution of chloride of barium, a white, voluminous, flocculent precipitate of antimoniate of barytes, which does not alter its state of aggregation even after long standing. When the solution of the chloride of barium is very much diluted, the antimoniate of potash still causes a flocculent sediment; but the precipitate only forms on the addition of a sufficient quantity of the potash salt, from the antimoniate of barytes being soluble in an excess of chloride of barium. This clear solution deposits very few or no flakes within twenty-four hours, but there separates on the surface a small pellicle of a salt, which consists of roundish, adherent granules resembling fish-roe. It would therefore appear that this pellicle is produced by the carbonic acid of the atmosphere, and is consequently merely accessory.

Salts of Strontia.—Antimoniate of potash behaves towards a solution of chloride of strontium in nearly the same manner as towards chloride of barium. However, with a certain concentration of the liquid, and a certain addition

of antimoniate of potash, there is formed in the voluminous precipitate an acicular salt, which appears under a magnifying power of 200 times to consist of fasciculi and tissue of needles. After long standing there is also formed on the surface of the liquid a fine crystalline pellicle, and some larger sandy granules are deposited on the sides of the test-tube. These larger granules appear under the microscope to have no crystalline surfaces, but to be formed quite distinctly of *concentric layers*. The flocculent precipitate dissolves readily in excess of dilute chloride of strontium; the liquid is nearly perfectly clear, and only deposits a few flakes after long standing, but a pellicle forms on the surface.

The aqueous solution of the sulphate of strontia is rendered opake by antimoniate of potash; after some time there is a slight flocculent precipitate, and a deposition of the above-mentioned minute granules on the sides of the test-tube. The precipitation of strontia by antimoniate of potash is one of the best means of detecting this alkaline earth.

Salts of Lime.—Antimoniate of potash immediately produces in a solution of chloride of calcium a voluminous flocculent precipitate, which does not become crystalline, and which redissolves to an almost clear solution in an excess of chloride of calcium. Very few flakes are deposited from this solution on its being allowed to stand exposed to the air, but a pellicle of minute crystals forms on its surface, which consists probably of biantimoniate of lime. It results hence that when only a little of the test is added to a dilute solution of chloride of calcium there is no flocculent deposit; but with a sufficient quantity of antimoniate of potash, even when the solution of the lime-salt is excessively dilute, there is a turbidness, and subsequently a flocculent precipitate, so that it would almost appear as if the sensitiveness of oxalate of potash towards salts of lime was even surpassed by that of the antimoniate of potash.

The aqueous solution of the sulphate of lime affords, immediately on the addition of antimoniate of potash, a voluminous flocculent precipitate, which undergoes no change in its state of aggregation even after long standing. The liquid deposits no crystals. The smallest quantity of lime in salts of potash, especially in the carbonate of potash, may be detected instantly by the antimoniate of potash from the opacity produced.

Salts of Magnesia.—Magnesia is thrown down from the aqueous solution of its salts, especially from that of the sulphate of magnesia, in a voluminous and flocculent state by the antimoniate of potash. The antimoniate of magnesia redissolves to an almost clear solution in an excess of sulphate of magnesia, but a few white flakes generally separate after standing. On this account no flocculent precipitate is produced in very dilute solutions of magnesia, except when a sufficient quantity of the test is employed; small quantities of magnesia are easily overlooked even when the solution is but moderately dilute. Frequently, however, a crystalline opacity results on agitating the liquid which might easily be confounded with that which is formed with salts of soda; when the solution is excessively dilute, so that no precipitate results on the addition of the test, small crystals are deposited within twenty-four hours in considerable quantity.

The crystals appear to be the neutral salt, since they do not form in an aqueous solution of carbonate of potash to which a small quantity of sulphate of magnesia has been added. Such a solution affords with antimoniate of potash a flocculent precipitate similar to the antimoniate of lime. The crystals are nearly insoluble in pure water, and but very slightly soluble in a cold dilute solution of carbonate of potash, sulphuret of ammonium, and sulphuret of potassium; they are rapidly decomposed by muriatic acid. Tersulphuret of antimony is therefore immediately produced when

some alkaline sulphuret is poured on them, and an excess of muriatic acid is added.

The primitive form of the crystals is that of an oblique rhombic prism. When the crystals are allowed to form slowly in a moderately dilute solution of pure sulphate of magnesia, they are perfectly developed, and form a sandy powder of vitreous lustre, the prismatic form of which can easily be detected with the assistance of a good lens. Magnified 200 times, and with a good light, they appear perfectly transparent, well-defined crystals, which refract the light very powerfully. It will always be necessary to attend carefully to the crystalline form of the antimoniate of magnesia, when employing the antimoniate of potash as a test for soda; or else to assure oneself of the total absence of lime and of magnesia in a liquid by oxalate of potash and by basic phosphate of ammonia.

It should always be borne in mind, that on mixing the antimoniate of potash with salts of ammonia, precipitation takes place. A solution of the test in 100 parts of water gradually affords, with a moderately-dilute solution of sal-ammoniac, a considerable flocculent precipitate which most probably consists of biantimoniate of ammonia.

Salts of Alumina.—Antimoniate of potash produces a voluminous flocculent precipitate in a solution of potash-alum, which re-dissolves to a clear solution in excess of alum; no crystalline deposit is formed, and only after very long standing of the liquid are a few flakes apparent at the bottom of the test-tube. When a dilute solution of alum is mixed with a *little* antimoniate of potash, the liquid remains clear, and is not rendered opake even after long standing.—*Chem. Gaz. from Archiv. der Pharm.*

ART. XIII.—ON THE FORMATION OF HYDROCYANIC ACID
IN THE PREPARATION OF SPIRITUS ÆTHERIS NITRICI.

By MR. WILLIAM BASTICK.

IN Germany, it is customary among Pharmaceutists to use sugar or starch in conjunction with nitric acid for the development of hyponitrous acid, in the preparation of spiritus ætheris nitrici—a practice recommended by Liebig, and described by Dr. Pereira in his excellent work on *Materia Medica*.

An Apothecary of Berlin was led to believe, that hydrocyanic acid was generated in the spiritus ætheris nitrici, from the peculiar odour which it possessed when prepared in this manner.

At the suggestion of Professor Liebig, I undertook to examine the fluid obtained by this process, to see if the above surmises were correct; and I succeeded, by the most unequivocal tests, in showing the presence of hydrocyanic acid in it, especially when the receiver was kept sufficiently cool to admit of its condensation. I then estimated it quantitatively by precipitation, with a salt of silver, which gave, as the mean of three experiments, a precipitate of cyanuret of silver, of about one grain, which is equal to nearly one-fifth of a grain of anhydrous hydrocyanic acid in one hundred grains of spiritus ætheris nitrici, that being the quantity operated upon.

I endeavored to produce hydrocyanic acid by the substitution of oil of turpentine, a substance highly rich in carbon, in the place of alcohol, by this process, but did not obtain a trace of the acid. I have since examined the spiritus ætheris nitrici, prepared according to the London Pharmacopœia, but did not succeed in obtaining the slightest indication of the presence of hydrocyanic acid. At present, I have not

pursued the investigation far enough to give any satisfactory theory to explain the metamorphosis, which takes place among the elements of the sugar, the alcohol, and the nitric acid, in this process, in the formation of hydrocyanic acid, and I am not aware of any analogous case in Chemistry, by which to account for its production.

Mr. Redwood said, he had never heard of hydrocyanic acid having been detected in the spiritus etheris nitrici in this country, but had been informed that some of the nitrous ether of commerce contained an appreciable quantity of it. The nitrous ether, which was thus contaminated, was prepared from the residual liquor, consisting principally of alcohol and nitric acid, obtained from the manufacturers of fulminating mercury. Some manufacturers of nitrous ether had been obliged to discontinue the use of this liquor, in consequence of the difficulty of entirely getting rid of the hydrocyanic acid which it contained.

Trans. London Pharm. Society.

ART. XIV.—ON MADDER. By M. GIRARDIN, Professor of Practical Chemistry at the Municipal School of Rouen.

IN commerce the name of *Lizari* has for a long time been restricted to the entire roots of the madder, while that of *Madder* is applied to the pulverized roots.

The *Lizari* are very little employed for the purposes of dyeing, and there is hardly any but the *Lizari* of Avignon which is met with in the markets of France. The *Lizari* of Cyprus is actually of rare occurrence; that of Alsatia is never met with.

The powders called *madders* are distinguished according to their origin into *Dutch Madder*, *Alsatian Madder*, and *Madder of Avignon* or of the *Comtat*.

Up to the present time no one of the numerous works which have been written upon this subject, no work of *Materia Medica* or of applied botany, has given the history of these powders, nor the peculiar characters of each variety; I shall endeavor to supply this want by giving a detailed description of the three kinds of madder met with in commerce. My situation has enabled me to make a particular study of this important tinctorial product; and the following remarks are the result of many and various observations.

1. *Dutch Madder.*

The Dutch madder, which was formerly extensively employed in France, has almost entirely disappeared from our markets, from the heavy duty which the government purposely put upon it, in order to maintain and encourage the cultivation of that of Alsatia and of the Comtat. This madder possessed a well-deserved reputation, and there is no doubt but that it would again be generally used, if the duty, which is equivalent to a prohibition, were to be reduced. The following are its distinctive characters:—Its odor is strong and nauseous; its flavor is sweet, with a mixture of bitterness; its color varies according to the marks, and passes from a brown-red to an orange-red.

In general its powder is stringy (*en paille*), that is to say, its state of division is sufficiently large to exhibit the structure of the root. It is coarser than the powder of the other kinds of madder, which might be attributed to negligence, since frequently portions of *Lizari* are met with which have not yielded to the grindstone. This coarse state of comminution however is no defect, since it prevents fraud. This powder appears greasy to the touch. Exposed to the action of the atmosphere, it readily absorbs moisture, and when,

for the sake of ascertaining its quality, it is exposed to a moist air, its orange-red changes to a bright red, of a rich depth of color. The Dutch madder *works* more than the others, according to the commercial term, *i. e.* it presents more decided modifications of color by exposure to moist air.

Dutch madder is *stripped* or *not stripped*. In the first case, the roots have been freed from their epidermis, which gives greater brightness to the powder; in the second, they have been triturated without undergoing this operation, when the powder is of a more sombre color. This madder cannot be used while fresh; it must be a year in the cask at least. After three years it is in full vigor.

The *pale* powder, or of a yellow aspect the first year, soon undergoes fermentation with age; the divided parts then unite with each other, agglomerate, and increase in volume to such a degree, that, after several years, the dilatation is so great that the bottoms of the casks present a very marked convex form. The madder is then so hard, that in order to take it out of the cask, a mallet or chisel must be used. This madder ferments more than the others.

It keeps several years after having attained its greatest tinctorial power (about three years,) after which the layers which line the sides of the casks begin to lose their brightness; the madder assumes a pale brown color, and it enters into decomposition. The progress of this is slow but certain; it subsequently becomes quite extinct, and the madder has a brown-red color.

In its decomposition it may still be used for brown grounds or colors; but when age has destroyed all the coloring principle, it can only serve as *mulle*.

The marks current in our markets are—

Mulle O	-	-	} or {	Mulle.
Superfine	-	-		Fine grappe.
Not stripped or stripped				Superfine grappe.

This word *grappe* (bunch) is employed when age has given consistence to the powder. The term *grappe* is used to designate its state of agglomeration.

This kind of madder formerly came from Holland in oaken casks of the weight of 600 kilogrammes.

2. *Alsatian Madder.*

This madder, which has replaced the Dutch in our manufactories, although it does not possess all its qualities, has the following characters:—

The smell is less decided, more penetrating than that of the preceding; taste less sweet, equally bitter; color brown to bright yellow, according to the mark; state of division coarse. It easily absorbs moisture from the atmosphere; by long exposure it changes from yellow to a dark red; in use, however, it inclines more to yellow.

As is the case with the Dutch madder, it is not employed while fresh; it is in full vigor when two years old. It deteriorates sooner than the former; its fermentation is less decided; it grows very hard however in the casks, coheres to the very centre, and there is the same difficulty to extract it. The progress of decomposition is the same; the madder which has undergone this process can only be used for dark tints.

The Alsatian madder is never known by the denominations of *stripped* or *not stripped*, although the operation of *stripping* takes place. The marks alone distinguish the varieties. The marks known in our markets are—

O, Mulle.
MF, Mi fine.
FF, Fine fine.

SF, Superfine.
SFF, Superfine fine.

The most generally used is FF.

SFF is nearly an exception to the method employed by the Alsations in grinding, who are strict enough in their marks to be unwilling to prepare a very fine quality, which would be to the injury of the preceding.

The madder of Alsatia is packed in oaken casks or hogsheads of 600 kilogrammes, in half hogsheads of 300 kilogrammes, in quarters of 150 kilogrammes, and in barrels of 100 kilogrammes. All these hogsheads are similar in form, and only differ in size.

It is at Strasburgh, Hagenau and Geisselbrunn that the so-called Alsatian madder is manufactured.

3. *Madder of Avignon.*

The madder of Avignon is most generally used at the present time, and even preferred to the other kinds, because the dyer and cotton-printer find it easier, by using it, to vary the reds according to wish. It is especially since the peace of 1815 that the use of this madder has greatly increased.

Of all the kinds of madder this is the sort which has undergone the most modifications; I may say, almost the only kind in which variations have been made in the marks and in the quality. In Holland and in Alsatia the quality specified is generally conformable to the mark. In Avignon, on the contrary, each manufacturer has a mark to designate its quality; and the mark SFF, which with one is beautiful, is but middling with another. The result is, that the trader cannot trust to the mark alone, which presents a different tint in each manufactory. The madder of Avignon therefore can only be bought after having been spread out to view upon linen.

The characters of this powder are,—odor agreeable, slightly penetrating; taste sweetish bitter; color either rose, bright-red or brown-red, according to the roots employed in the preparation and to the degree of mixture; state of division very fine; powder dry to the touch.

When submitted to the action of the atmosphere, it absorbs moisture less readily than the other species; however, it does not work less, and subsequently affords a pale or very dark red, according to whether the powder operated on was *rosy* or *palus*.

In Avignon they are not acquainted with the terms *stripped* or *not stripped* (*robée ou non robée*.) There the word *épuration* is used. A madder is purified from 3, 5, 7 or 10 per cent., and even as high as 15 per cent. This mode of expression is pure quackery, for how is a root to be purified except by depriving it of its epidermis, and how can we suppose that the root may contain at will so much more or less of it as to require that the purification should some times be carried to 15 per cent.? We should have to suppose that the weight of the epidermis was to that of the root as 1 : 7, 10 or 15, which is not the case.

The best madder is made with the roots of the *Palus*. In Avignon the name of *Palus* is given to some tracts of land anciently covered with marshes; these lands, enriched by animal and vegetable remains, are eminently suited for the cultivation of the madder, and the roots they produce are almost all *red*, whilst other kinds of soils produce rose-colored roots.

The powder from the *Palus* madder is of a dull and rather unsightly red, but on drying it becomes blood-red, which may be varied at pleasure. A small quantity goes much further than a larger quantity of the *rose-colored* root.

The *rose-colored* madder is made with the so-called *rosy* Lizaris. The powder is of a bright red, bordering a little upon yellow.

The madder, which is half *palus*, half *rosy*, forms a brilliant powder, which is well received in the market, and which affords very satisfactory results in dyeing. The brilliancy of the *rosy* madder mingling with the rich depth of the *palus*, produces a most beautiful red.

The madder of Avignon may be used immediately on leaving the mills; but the powder which has been preserved in casks for a year is decidedly preferable. It keeps well, and undergoes little or no fermentation in the casks; it

does not cohere in a mass; after several years, however, it is decomposed with nearly the same symptoms as the other kinds; it is still used in this state. The small degree of fermentation evinced by this madder arises from its containing much less mucilaginous, saccharine, and bitter substances than the Dutch and Alsatian madder; for it is certain that the acid fermentation which is so energetically developed in the latter must be attributable to these substances.

Although pressed with great force into the casks, the madder retains a certain quantity of air between its particles, which in time acts upon the whole mass and gives it a uniform color, by oxidizing the primitive yellow coloring principle and changing it into a red principle. This theory, advanced by M. Decaisne, very well explains why the madder powders are improved in quality by being preserved for a certain time in the casks.

The drying of the roots in the stove has great influence on the tint of the madder of Avignon. If dried at too high a temperature, the powder is dull, without, however, losing in quality.

At first only two kinds of Avignon madder were known, the *the yellow madder* and the *red madder*. The first has since disappeared, and the *rosy madder* is now substituted for it.

As to the marks, it is difficult to give positive information on the subject, especially since quackery has endeavored to deceive by extraordinary names. Originally only the following marks were known:—

Mulle.

FF, Fine fine.

SF, Superfine.

SFF, Superfine fine.

These marks were put upon the casks without other designations.

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The tint alone decided to what sort of root the powder, belonged.

At present the madders are either—

Palus, or

Rosy, or

Half Palus, half rosy.

When it is wished to denote that a madder is all *Palus* a P is added to the mark. The following are the actual marks:—

Mulle, without distinctive marks.

FF	{	To each of these marks the letter
SFF		P is added for Palus,
SFFF		R for Rosy,
EXTF		PP for Pure Palus,
EPTSF		RPP for Pure Red Palus.
EXTSFF	}	Half Palus, half Rosy, without distinction.

According to these designations, it is by no means rare to find the absurd marks of

EXTSFRPP,

which is to be understood thus:—

Extra superfine fine pure red Palus.

It must be confessed that such absurdities can only exist in a country where fraud has made revolting progress. It often happens that the mark EXTSF, now used, is not equal to the old one of SFF.

The *extra fine* is especially manufactured with the heart or the ligneous part of the root. This mark gives less depth, because the ligneous part is less rich in coloring principle than the fleshy part or the bark of the root, but it affords a much more lively color. The madders of Avignon are packed in deal casks of 900 kilogrammes in weight. The insides of these casks are generally lined with very thick pasteboard, in order to prevent contact with the air, which blackens the powders, causes them to appear less

beautiful, and after a certain time destroys much of their tinctorial properties. Light also very quickly changes the coloring principle of these powders.

It is rather difficult to ascertain exactly the quantity of madder gathered each year in France, as well in Alsatia as in the ancient county of Venaissin.

In 1837 the crop of the Lizaris amounted, in these districts, to 1,200,000 kilogrms., which is equivalent to from 48,000 to 50,000 barrels, of which part was sent to the different places where it is consumed, as well within as without the country, conformably to the following table:—

	Kilogrammes.
Rouen, Havre, and Dunkirk, - - -	3,800
Antwerp, - - - - -	500
Genoa and Leghorn, - - - - -	183
London, Liverpool, and Glasgow, - - -	3,760
London, Liverpool, and Glasgow, 800 bales of lizari, which represent - - - - -	3,500
Hamburg, - - - - -	530
St. Petersburg, - - - - -	1,608
Odessa, - - - - -	110
Rotterdam, - - - - -	423
Trieste, - - - - -	205
New York and Boston, - - - - -	812
Mulhausen, Strasburg, Metz and Basle, for the consumption of Alsatia, Prussia, Swit- zerland, Bavaria, Austria, &c. - - -	15,000
Total, - - - - -	30,481

There remained, therefore, of the harvest of 1837 at Avignon and in the department, from 18,000 to 20,000 barrels when the harvest of 1838 was about to be got in. This, although less than the former, amounted to between 36,000 and 40,000 barrels.

The manufacture at Avignon is always in a prosperous condition.

The state of the customs shows, that in 1840 there was exported from France 2,161,158 kilogrammes lizaris, which represent in value 1,620,869 francs, and 12,114,054 kilogrammes of madder (equal to 12,114,054 francs;) that in 1841 there were exported 1,896,416 kilogrammes of lizaris (equal to 1,422,312 francs,) and 11,840,886 kilogrammes madder (equal to 11,840,886 francs.)

The importation of foreign lizaris and madders is very small, on account of the heavy duties. The lizaris chiefly come from the Levant by way of Turkey, the Barbary States, from Tuscany, the two Sicilies, and from Germany. The madders come especially from Holland and Belgium.

Lon. Chem. Gaz.

(To be Continued.)

ART. XV.—ON SOME NEW LACTATES.

By PROFESSOR LEPAGE.

SINCE the year 1841, I have devoted myself to the preparation of lactic acid on the large scale, and consequently of lactate of iron, a salt introduced into therapeutics a few years ago, by Profestor Bouillaud.

I will not here recapitulate the process of extracting lactic acid, but will only observe, that for its preparation I employ whey, which is found in abundance, and free from water, in our neighborhood (Gisors) throughout the summer, at a very low price, and that, on the average, I obtain from 30 litres of this product (without addition of lactine)—following, for its saturation, the directions given by MM. Boutron-Charlard and Frémy—400 grammes of pure lactate of lime.

Lactic acid is now so well characterised that it can no longer be confounded with any other; nevertheless, its history cannot be regarded as complete. Feeling persuaded, therefore, that everything relating to the history of this acid, or to that of its combinations, must be interesting to chemists, I now publish the results of some experiments which I have tried with the view of obtaining various lactates not yet known.

I. LACTATE OF OXIDE OF ETHYLE (LACTIC ETHER.)

By distilling in a retort, furnished with an adapter and a receiver, a mixture of two parts of powdered and dried lactate of lime, two parts and a half of rectified alcohol, and one part and a half of sulphuric acid at 66° , taking care to stop the operation when the matter in the retort begins to turn brown, a liquid is obtained in the receiver, which, put in contact with fused and pulverised chloride of calcium, decanted after 24 hours' contact, and submitted to a second distillation, possesses the following properties:—

It is transparent, colorless, possessed of an odor somewhat resembling rum; its density is about 0.866 at 48° F., it boils at 170° F., under the pressure of $28\frac{1}{2}$ inches; it is neutral to test papers, miscible with water, alcohol and ether, in all proportions. A small quantity of this same liquid, left for a month in a flask filled with air, remained neutral to test papers.

The caustic alkalies decompose it into alcohol and lactic acid, which unites with the alkali; this phenomenon is especially apparent with lime. It is sufficient, indeed to agitate this liquid with a little hydrate of lime in a sealed flask for all to assume the form, the same day or the day after, of a white mass having the appearance of gelatinous alumina or silica. This mass easily liquifies in the sand-bath, and the liquefied product, filtered and suitably evaporated, gives, on cooling, a crystallized salt, which possesses all the properties of lactate of lime.

From these facts I think I may conclude that I have obtained lactic ether.

In the preparation of this product, all the lactic acid of the lactate of lime, liberated by sulphuric acid, does not enter into combination with the oxide of ethule; for, by diluting the residue remaining in the retort, filtering, in order to separate the sulphate of lime, and saturating by chalk, sulphate of lime is obtained, and is precipitated; there is found in the liquor a small quantity of lactate of lime, which is easily removed from it by evaporation.

II. LACTATE OF OXIDE OF METHULE.

By substituting pyroxilic spirit for alcohol in the foregoing preparation, I hoped to obtain lactate of the oxide of methule, but my expectations were deceived, for I could not detect in the product which I obtained any other products than those which belong to pyroxilic spirit: thus, for example, the liquid put in contact with hydrated lime does not assume the form of a jelly, as in the foregoing case; nevertheless, if it be filtered, the presence of a small quantity of lime may be detected in it; but it is impossible to obtain the crystallised salt by the evaporation of the liquid. When the experiment was repeated with pure pyroxilic spirit, absolutely the same results were obtained. Now, since pyroxilic spirit possesses the property of dissolving certain alkaline oxides, as was proved, a long time ago, by Dumas, and, among others, oxide of calcium, it must be admitted that the small quantity of this alkali found in the product which I examined, arose from the known property of lime dissolving in pyroxilic acid.

Another fact also tends to confirm my statement, that by saturating with chalk the residue removed from the retort and previously diffused in a sufficient quantity of water, I was able to extract from it a quantity of lactate of lime nearly equal to that which I employed.

Notwithstanding this negative result, it is probable that, in more favorable circumstances, lactate of oxide of methule might be obtained.

III. LACTATE OF CADMIUM.

To obtain this salt, two processes may be put in practice:—

FIRST PROCESS.—The lactic acid is saturated by hydrate or carbonate of cadmium, recently precipitated. The operation is accelerated by holding the phial in which the operation is conducted in water heated to from 158° to 176° F. When the liquid dissolves no more oxide, it is filtered, then evaporated at a very gentle heat until white pellicles are seen to float on the liquid. The capsule is then removed from the fire, and, on cooling, the salt is deposited in a spongy mass formed by the re-union of all the small needles. The small quantity of supernatant liquor is decanted; this liquor may give more salt by concentration; the product obtained is afterwards dried by heat, or in folds of blotting-paper.

SECOND PROCESS.—A concentrated solution of sulphate of cadmium is afterwards decomposed by a concentrated solution of lactate of lime. The proportions to be employed are about 20 parts of lactate of lime to 15 parts of crystallised sulphate of cadmium. It must be operated with ebullition, for without the heat the precipitation of the lactate of lime would take place very imperfectly, and would often require a long space of time. When it is ascertained that the liquor no longer contains either sulphate of cadmium or lactate of lime, it is filtered, and then evaporated, as in the foregoing case.

The lactate of cadmium obtained by each of these processes is a white salt, crystallised in very small needles. It is soluble in from 8 to 9 parts of cold water, and in four parts of boiling water; it is insoluble in alcohol; its aqueous solution acts with reagents like that of all the soluble salts of cadmium.

This salt presents, in its crystallization, a peculiarity, which is not, however, an isolated fact in chemistry—namely, that its solution saturated by ebullition does not crystallize by the cooling of the liquor, even after eight days (this, at least, is the phenomenon which two saturated solutions of this salt have presented to me.) To crystallize it, it must be again submitted to the action of heat; and if, as soon as some pellicles appear on the surface of the liquid, even before it enters into ebullition, the capsule be removed from the fire, the whole takes the form of a mass on cooling.

It is ascertained that lactate of cadmium prepared by the second process does not contain sulphate of cadmium in the mixture, by its very dilute aqueous solution not being rendered turbid by chloride of barium. But, in order to ascertain that it contains no lactate of lime, oxalic acid must not be added to its solution, as this acid causes in the soluble salts of cadmium an insoluble white precipitate of the same base. It should be operated in the following manner:—All the cadmium should be precipitated from the solution to be tested in the state of yellow sulphuret, by means of sulphuretted hydrogen; oxalic acid is thus added after the liquor has been filtered, and previously heated, in order to drive off the excess of sulphuretted hydrogen.

IV. LACTATE OF PROTOXIDE OF ANTIMONY.

I endeavored to dissolve in lactic acid oxide of antimony precipitated from emetic by the process of M. Durand, of Caen, or oxide precipitated from the same salt by ammonia, but without heat, and in both cases the acid dissolved only very minute quantities of oxide, incapable of saturating it. I think that protoxide of antimony, which, as is known, is endowed with almost as eminently electro-negative as basic properties, is, in general, little susceptible of combining alone with the vegetable acids; however, Berzelius describes several antimonial salts of organic acids. Having wished to prepare acetate of antimony with the same oxide as that

which I used for the lactate, this oxide refused to dissolve with or without heat in acetic acid, even when very concentrated.—*Chemist, from Journ. de Chim. Med.*

ART. XVI.—ON CAMPHOR.

Extract of a Letter, from E. O'REILEY, Esq., dated Amherst, 6th March, 1842, to J. M'CLELLAND, Assistant Surgeon, Calcutta.

“THE bottle herewith sent is part of a quantity of about 120 lbs., procured by evaporation from the tops of a plant growing profusely throughout the jungles on this coast, (specimen in flower enclosed in the box.) The attention of a few Chinese was attracted to it some months ago, by my enquiry whether the same plant was common in China, and to what purpose it was applied. I was informed that the plant, which is an annual, was cultivated in some of the seaward provinces of China, and that the salt procured from it formed a part of their *Materia Medica*, being considered efficacious in cases of rheumatic pains, and other diseases requiring emollients.

“The whole of the apparatus employed in procuring the salt is simple in the extreme, consisting merely of a large pan into which the tops are put, with a sufficient quantity of water to cover them over, in which is placed a cylindrical casing of wood, being smallest at the top, on which is fitted a large, shallow brass basin. A gradual heat is then applied, and the steam rising through the casing is condensed on the surface of the basin, which, being constantly supplied with cold water, causes a crystallization of the salt; this method is so rude, that it is impossible to form any correct idea as to the proportional parts of salt in a quantity of the plants: but, judging from its very strong odor when rubbed between the fingers, it may be supposed

to contain a very much larger proportion than is procured by the method just stated. Should it prove to be of any considerable value, or at all approaching to that placed on it by the Chinese who made it, the yearly produce of these jungles would amount to a very considerable item. On this head I shall be most happy to hear from you."

With regard to the letter of Mr. O'Reiley, we referred to Dr. Voigt, of Serampore, for information relative to the plant affording the Camphor, of which specimens both of the plant itself, and of the crude camphor afforded by it, had been forwarded by Mr. O'Reiley. Regarding the plant, Dr. Voigt states, that it belongs to De Candolle's genus *Blumia* and is, as far as he can see, a new species; the genus however affords, Dr. Voigt remarks, several species presenting camphoraceous properties. The sample of camphor forwarded by Mr. O'Reiley, as obtained from the plant in question, which appears to be very common on the Tenasserim Coast, we placed in the hands of the Laboratory Assistant in the Honorable Company's Dispensary, in order to have a portion of it refined, and also that the various preparations of camphor in medical use might be prepared from it, which has been done accordingly, and the samples of the different articles obtained have been submitted, through the proper channel, to the Medical Board.

In refining this camphor, there is a loss of about 25 per cent. of its weight. The ordinary loss in refining China camphor is about 19 per cent. Taking the value of the latter at 4s. 8d. per lb. in its crude state, the usual rate being, for the present year, 2 rupees 8 annas per lb., that of the former would be 3s. 9d.; but last year the article was obtained for 2 rupees per lb., or 11d. per lb. less than its cost this year, so that the Tenasserim camphor would require to be delivered at 2s. 10d., or 1 rupee 5 annas per lb., in order to compete with the Chinese article. From the observations of Mr. O'Reiley, the plant seems to be very abundant, and the method of manufacture both simple and

efficient; so that there would not appear to be any obstacle to the article becoming an important production. In its refined form it is identical, in all its properties, with Chinese camphor.

Calcutta Journal of Natural History.

ART. XVII.—ON ISINGLASS.

A VERY important observation has been made relative to the structure of the air vessel of *Polynemus Sélé*, which will lead to the perfect purity of the isinglass, and place it on a footing with the best Russian description of the article; while the abundance in which it is afforded by this fish cannot fail to render it an object of great importance. When examining a sample of the article received from Mr. O'Reiley, of Amherst, weighing 12 lbs., and which cost on the Tenasserim Coast 4 rupees, it was found that each piece, from which the outer and inner membranes are removed, consists of an outer and an inner structure. The outer structure consists of a thin lamina, composed of *oblique* fibres, which are easily seen passing diagonally over the surface, and composing about ten per cent. of the whole. If the mass be divided crosswise into narrow sections, the transverse fibres may be perfectly separated into fine silky fibres, which consist entirely of pure isinglass. Mr. Scott, the Assistant, who was employed in the examination, suggested the separate analysis of the outer oblique fibres, when it was found that they consisted entirely of *fibrin*, and contained all the impurities for which the Bengal isinglass had hitherto been considered inferior.

Comparing one of the sections from which the oblique fibres had been removed, (No. 5 in the annexed table,) with a specimen of isinglass received from Dr. Royle, (No. 1 in the annexed table,) and said to be very pure, the resemblance was quite perfect, and it will be seen from the annexed table of analysis that, of the two, our own specimen is the

purest, the "loss" being chiefly gelatine. The analysis has since been frequently repeated with invariably the same result.

Isinglass examined in the Laboratory of the H. C. Dispensary, April and May, 1842.*

DESCRIPTION.	FIBRIN.	ALBUMEN.	GELATINE.	LOSS.	TOTAL.
1. Good Isinglass, received as a sample from Dr. Royle, in a letter under date 29th Nov. 1841.	2.5	a trace.	97.5	none.	100 parts.
2. Imported with medical stores for public use from Europe, 1840-41. Invoice price 18s. per lb.	2.5	a trace.	95.	2.5	100 parts.
3. Bengal Isinglass in the rough, as exported in 1839-40, and sold for 1s. 7d. per lb., inferior sample.	10.	a trace.	87.5	2.5	100 parts.
4. Bengal Isinglass in the rough, as exported 1839-40, and sold for 1s. 7d. per lb., favorable sample.	7.5	a trace.	90.	2.5	100 parts.
5. Dillo, with the outer oblique fibres peeled off.	1.25	a trace.	95.	3.75	100 parts.

* The following is a note by Mr. Scott, the Laboratory Assistant, detailing the manner in which the examination was conducted:—

"Twenty grains of Isinglass were introduced into a matrass with two ounces of distilled water, and dissolved over a water bath. The gelatinous solution, being carefully decanted, was then evaporated to its proper consistence, and the weight ascertained. The insoluble portion was well washed, dried, and its weight noted. The presence of Albumen was detected by the solution being rendered perceptibly opaque at a boiling temperature."

Ibid.

ART. XVIII. ON INDIGENOUS OPIUM.

Extract from a report of MM. DE MIRBEL, BOUISSINGALT, AND PAYEN, and process of testing founded on the comparative determination of the proportions of Morphia.

I WILL here sum up in a few words the history of the culture of indigenous opium, which I think, will be interesting to the reader.

Dubuc, of Rouen, was occupied in the year IX. with the culture of the *Papaver somniferum*, and with the preparation of opium in *extract* and in *tears* (*Ann. de Chimie*, t. 38, p. 181.)

M. Lorseleur Deslonchamps made numerous experiments with the view of substituting indigenous opium, under these two forms for the exotic products. On this occasion he received a testimonial of satisfaction from the class of the Institute.—(*Moniteur* of 1811, p. 775.)

The late Mr. Hennell obtained from 700 grammes of opium, cultivated in England, by Messrs. Cowloy and Stairs, 48 grammes of morphia. (*Botany of Drugs*: Thompson, p. 202.)

In 1817, The Society of Encouragement of London, awarded a gold medal to Mr. John Young for his method of cultivating the *Papaver somniferum*, and of collecting the opium from the capsule without diminishing the crop of seeds; but in recommending the combined culture of poppies and potatoes, the author announced exaggerated profits of 2,400 *francs per hectare*, which neither he nor others realised.

In the following year, Vanguelier demonstrated the presence of morphia in indigenous poppies; afterwards MM. Peschier, of Geneva, and Duprat, of Toulouse, also obtained

this proximate principle from the capsules of the *Papaver somniferum*; and M. Tilloy, of Dijon, extracted it in the large way, from the dried capsules deprived of their seeds.

In 1826, M. Petit, of Corbeil, employed the stems, leaves and capsules of the plant for preparing aqueous and alcoholic extracts which appeared to him to contain the same principles as exotic opium, the proportions being excepted; he announced that the opium obtained by incision of the capsules of poppies cultivated near Dijon had furnished from 16 to 18 per cent. of morphia,* a result which will appear incorrect when compared with the proportions obtained by the most skilful chemists.

Such were the conclusions of investigations made with great care by M. Dublanc, and communicated to the Academy of Medicine on the 15th of July, 1826, and 27th of March, 1827, at first on opium obtained by incision of the capsules, by M. Caffin, of Orsigney, agriculturist of Leinvet-Oise: this sample gave 2 per cent of morphia, whilst the mean of his analysis of opium from the East furnished 8 per cent.; another sample of opium obtained by incision of the capsules of the poppies cultivated in the environs of Toulouse, gave 4 per cent of morphia. M. Dublanc, was, moreover, occupied in this series of investigations, with the comparative determination of the various proximate principles contained in opium prepared by aqueous or alcoholic infusion and by decoction of the capsules of the arttic plants; he quoted in support of his results, the investigations relative to the extraction of morphia from indigenous poppies undertaken by Vogel, Blondeau, Chevallier, Delafolie, and Geiger.

The conclusions of the work of Pelletier were much more encouraging, especially if we compare the analytical re-

* M. Caventou announced, in 1827, that 36 parts of indigenous opium contained 8 parts of morphia, or 22 per cent. (*Journal General de Médecine*, 2e, Serie t. VI., p. 72.)

sults with the idea expressed by the author, that the *Papaver somniferum* grows with facility in France, even on bad soils; but he should have informed us whether in this case the opium collected was as abundant and of as good quality, which is not very probable.

These experiments were undertaken with the view of determining the quality of the opium which General Lamarque had obtained by incision of poppies cultivated on his lands: in Pelletier's Memoir (*Journal de Pharmacie*, Vol. XXI. p. 572,) we read:—

“500 grammes of French opium will give 51 grammes of morphia,” corresponding to 10.2 per cent.

Further on, Pellitier adds:—“500 grammes of opium from the East will give only 45 grammes of morphia,” or 9 per cent.

It is evident that the comparative analysis of the opium of Smyrna and that of the environs of Bordeaux showed a difference in favor of the latter, analogous to that which we now find between the product collected in Algiers and the opium of the East.

With regard to the enormous proportions of 14 and 22 per cent. of morphia obtained by M. Caventou from samples of indigenous opium, they can be explained only by the impurity of the product.

The proportion of morphia indicated by Pelletier, more considerable than that obtained by the other experimenters, does not, however, amount to more than 10.2 per cent. of morphia for indigenous opium; we are not warranted in repressing a doubt relative to the proportion of 12 per cent. announced in a sample brought from Algiers.

Be it as it may, we do not think it right to raise, beyond the terms of our report, the hopes which we have expressed concerning our future collection of opium in Algiers.

The enlightened solicitude of the Duke of Dalmatia for the interests of our colony of Algiers, will doubtless induce him to continue his experiments on the culture of the *Pa-*

paver somniferum, and on the extraction of opium. We will examine the samples which may hereafter be sent to us; but in order that their quality may be ascertained on the spot, we think it right here to indicate one of the processes most easily followed, for determining, comparatively at least, the proportions of pure morphia in various indigenous and exotic samples.

Comparative analysis of samples of crude opium.

25 grammes of opium cut in very thin slices, and left to macerate in 150 grammes of pure water. After 24 hours' contact, it is triturated in a mortar until the hydrated matter is clear; then the most finely divided parts which the liquid holds in suspension are decanted on a filter; water is added to the residue, which is triturated *de novo* and decanted on the same filter which is again washed with distilled water until the liquor passes through colorless; an excess of well-slaked lime is added to the filtered solution;* the mixture is boiled for about five minutes, filtered, and the filtered solution is acidulated with hydrochloric acid, which saturates the lime and combines with the morphia. The morphia is precipitated by ammonia, the excess of which is driven off by boiling. The morphia is collected on a filter, and washed with alcoholised water, then dissolved in alcohol of 33 degrees; it crystallises by cooling; it is then sufficient to wash it with ether, to eliminate the narcotine; it is afterwards dried and weighed.

There certainly remains a small quantity of morphia in the liquid from which it has been precipitated; it might be obtained by a second treatment after evaporation, but the operation would then become long and rather more difficult; besides, this is not necessary for determining which

* One of the best means of completely slaking and thoroughly dividing lime consists in pouring on 1 part of quick lime two parts of boiling distilled water; in a few minutes the extinction will be complete, even when a small quantity is acted on.

of several samples contains most pure morphia; the most simple assay gives even more sensible differences, because the least rich opium is that which leaves in the solution a larger proportion of morphia relative to the quantity which it contains.

It would be desirable for all pharmaciens to take the trouble of testing the medicinal opium which they buy; they could then present to practitioners medicines less variable in their effects, and they would assist in the destruction of frauds, which would cease to be profitable to their authors, and which are sometimes so prejudicial to the interests of medicine.—*Chemist, from Journ de Chem Med.*

ART. XIX. PREPARATION OF MERCURIAL OINTMENT.

By M. FOSSEMBAS.

Few Pharmaceutical preparations have given rise to so many investigations and theories as mercurial ointment; so much has been said on this subject, that the following may at first sight appear fastidious and useless.

I admit that it is not without a certain feeling of diffidence that I publish these observations, which have led me to the employment of a process by which I am able to prepare, in less than an hour, eight pounds of mercurial ointment.

The process which I have followed has nothing new in it, since it consists merely in the use of *rancid grease*; but it is of such easy and rapid execution, that I have considered it my duty to rescue it from the oblivion into which it has fallen.

Only twenty-five grammes, of this substance are required to the livre of ointment, and so small a quantity of product is not capable of giving injurious properties to a medication, which *cannot long be preserved from rancidity*, and which is *seldom or never employed except in this state*.

The conditions of a prompt division of the metals are reduced to two :—1st. *To dividing by trituration*. 2d. *To preventing the re-union of the separated parts*.

The first condition is always fulfilled ; but the second seldom, if ever. Indeed, recent lard being deficient in agglutinative properties, cannot, therefore, retain the mercurial powder, and prevent the reunion of its particles.

Fresh lard is therefore incapable of completely “killing” mercury.

Will it be objected to me, that vigorously continued labor is always, in a little time, followed with success? To this I reply, that I have never seen the labor terminated before the grease had determined an evident odor of rancidity.

But why is this state of alteration favorable to the extinction of the metal? The examination of this very matter will serve for a reply:

That which at once attracts our notice in rancid grease, is its consistence. If it be left only until that degree of alteration at which it still possesses a certain softness, it is immediately perceived that it has acquired very evident agglutinative properties. If it be agitated in the mortar, it adheres very firmly to the pestle, and makes a noise similar to that made by beating turpentine.

If, into the midst of this matter thus triturated, a certain quantity of mercury be poured, the agitation being continued the metal will be immediately divided, and the *adhesion* of the grease, which will *envelope* each of its *particles*, will necessarily *prevent* their reunion. When we reflect on the profound and extensive division which each stroke of the pestle operates on a body so fluid as mercury, we shall not

be surprised at the possibility of causing, in a few minutes, large quantities of metal to disappear in a small proportion of rancid grease.

This being enunciated, I arrive at the facts, which prove it; and I will content myself with purely and simply relating them.

I for some months exposed to the contact of humid air about a pound of that fat, of little consistence, sold by the pork butchers. When I employed it, it was not hard, but it adhered tenaciously to the fingers. I took 200 grammes of it, and I triturated it for a few minutes in a marble mortar; it became as soft and as thick as honey. I poured into it four pounds of mercury, by portions of 300 grammes at a time, and five minutes sufficed for the complete extinction of the metal; only after having introduced the fourth portion, the ointment had acquired hardness; but the operation could easily be continued by the addition of a little oil of sweet almonds.

By operating as I have just said, I was able to incorporate four pounds of mercury in the 200 grammes of fatty substance employed. The microscope detected not the smallest metallic particle in the whole mass. Arrived at this point, I added the 1,800 grammes of fresh lard, half melted, and, after a quarter of an hour's agitation I had a perfectly homogeneous ointment, in which the mercury was irreproachably extinguished.

[The process described by M. Fossembas is not very new, as he himself acknowledges; but it succeeds very well. It is analogous to the method of MM. Coldefy and Simonin, which consists, as is known, in extinguishing mercury by means of a small quantity of lard, which has been prepared by melting it, pouring it into water, and exposing it to the action of the air.]—*Ibid. from Journ. de Pharm.*

ART. XX.—ON SOME PRINCIPLES OF WHITE CINNAMON.

By WÖHLER.

MEYER and Reiche undertook, at the invitation of Wöhler investigations concerning the principles of white cinnamon (*Costus dulcis*.) The following are the results:—

I. MANNITE.

Petros and Robinet first demonstrated the existence of this principle in the bark; but they left undecided the question as to whether it is really mannite. The present investigations have proved that this principle does not differ from ordinary mannite. The bark contains a very large quantity of it—about eight per cent. If it be boiled with water, and if the liquor be evaporated, a great quantity of an extract of a slightly bitter and acid taste is obtained: boiling alcohol removes mannite from the latter, and this mannite may be easily obtained colorless by several crystallizations. The portion insoluble in alcohol contains, besides other principles, starch and many salts, particularly a calcareous salt.

II. ESSENTIAL OIL.

Ten pounds of bark gave, by distillation with water, 12 drachms of volatile oil. It was lighter than water and had a strong aromatic odor. In another preparation, in which much less bark was employed, and in which the distilled water had been cohabated several times, an oil finally passed over which sunk in water.

The whole quantity of crude oil obtained was left for several days, frequently stirred, in contact with a concentrated solution of potassa; the mass was then diluted with water, and the oil was extracted by distillation. The greater

part of the oil distilled floated on the water, but there finally passed over an oil which sunk to the bottom of the vessel.

So small a quantity of this heavy oil was obtained, that only one analysis of it could be made, which was defective. This oil had a peculiar odor, not comparable with another oil. It was not possible to combine it with potassa.

The solution of potassa, from which the oil had been extracted by distillation, was separated by filtration from a small quantity of a deep brown semi-resinified oil, which also floated on the surface; it was then saturated with sulphuric acid, it became milky and was afterwards distilled. There was obtained, but in small quantity, an oil heavier than water, sufficiently characterised by its odor resembling oil of cloves (caryophillic acid.) It easily and completely dissolved in potassa, and was again separated from it by the acids.

The light oil, which formed the greater part of the whole oil, greatly resembled in odor, oil of cajeput; it was submitted with water to a fractioned distillation.

The portion which first passed over boiled at 356° F. It contains in 100 parts:—

Carbon,	-	-	-	-	75.25
Hydrogen,	-	-	-	-	11.28
Oxygen,	-	-	-	-	13.46

Another portion of this oil was distilled alone and very slowly in an oil bath of the temperature of 330° F. until about half was distilled over. It presented the following composition:—

	I.	II.
Carbon, - - -	79.12	79.09
Hydrogen, - - -	11.58	11.71
Oxygen, - - -	9.30	9.20

The portion of oil which came over last was by fractioned distillation with water, and whose odor likewise greatly re-

sembled that of oil of cajeput, had a specific gravity = 0.941 and its boiling point amounted to 473° F. It was formed of

	I.	II.
Carbon, - - -	80.56	80.52
Hydrogen, - - -	10.66	10.88
Oxygen, - - -	8.78	8.60

It is to be regretted that the total quantity of crude oil at the disposal of the operators was too small to allow of new investigations with the view of arriving at a more exact separation, and at a more accurate analysis of these different oils; but, at all events, this work shows that the oil extracted from white cinnamon is probably formed of four different oils; one of them is certainly identical with oil of cloves, and another is probably identical with the most important principle of oil of cajeput.

III. ASH OF THE BARK.

The bark dried in the air left, after combustion, nearly six per cent. of ash. The latter contained nearly 86 per cent. of its weight of carbonate of lime, and not quite two per cent. of silica. It contained only a small quantity of carbonate of potassa, but it contained altogether more than four per cent. of potassa, and 1.3 per cent. of soda; the other bases were magnesia, peroxide of iron, oxide of manganese, and alumina. The bases were partially combined with chlorine, and sulphuric and phosphoric acids. About 2.5 per cent. of phosphate of protoxide of manganese was found.

London Chemist, from Ann. der Chem.

MINUTES OF THE PHARMACEUTICAL MEETINGS.

February 5th, 1844.

Professor CARSON in the Chair.

The minutes of the preceding meeting were read and adopted.

The Journal de Pharmacie et de Chimie, and the Journal de Chimie Medicale for December, were presented to the meeting.

The Committee appointed at last meeting on the paper of Lawrence Turnbull, reported in favor of the publication of the formula for "Chemical Cold Cream," suggested by the author. The Committee were of opinion that the introduction of a small quantity of biborate of soda, whilst it whitened the preparation, did not interfere with its medical utility. From some experiments made by them, that salt appears to owe its effect on oleaginous substances to its alkaline nature, and resembles in this respect the carbonate of soda, though much less caustic than the latter. They further believe that the substitution of so large a portion of wax for the spermaceti is improper, inasmuch as the freezing point of the latter is much less than the former, it being understood that the ready melting on the skin of an ointment used like cold cream is a desideratum. They approved of the introduction of the oil of roses and of the reduction of the quantity of rose water to one half. In conclusion the Committee remarked, that, from its greater consistency, the ointment made by the formula under consideration would be appropriate for summer use.

A paper on the "Volatile Oil of Fire-weed," (*Erecthites præalta*,) was read by Augustine Duhamel, and a specimen of the oil presented for examination. It was referred to the Publication Committee.

A communication was received from Edward Parrish, on "Syrup of Chamomile," which¹ was read and referred for examination to A. Duhamel and Wm. Procter, Jr.

A communication from Peter Lehman, on Stewart's formula for Hydrarg. C. Cretâ, which was read and referred to the Publication Committee.

Augustine Duhamel presented a fine specimen of butter of Cacas, in the form in which it was received from South America.

William Procter, Jr., presented a specimen of *Senegin*, or polygalic acid, and stated that it had been separated from a tincture of Seneka made with diluted alcohol, and which had been exposed in a cold situation during several months. The powder thus deposited, after solution in boiling alcohol, from which it separated on cooling, was found to be nearly pure polygalic acid. Its taste is very pungent, and has the properties of that substance as described in the books.

Professor Bridges called the attention of the meeting to some experiments he had been making on the property which anthracite possesses of absorbing gaseous ammonia, like ordinary charcoal. The views of Liebig relative to the part which carbon performs in the soil of absorbing gaseous bodies, particularly ammonia, he thought might be applicable to anthracite; and that the large quantities of pulverised coal which exists and is constantly formed at the mines and depots for this substance, might be applied to manure. Dr. Bridges found that a solid fragment would absorb five and a half times its bulk of ammonia; in small pieces, eleven times its bulk; in coarse powder, twenty-eight times its bulk; and in fine powder a greater quantity. Should experience prove the efficiency of this material as a fertilizing agent, it will add another to its already numerous features of usefulness.

William Procter, Jr., stated that having occasion recently to prepare some mercurial plaster, he varied the formula so far as to triturate the mercury with one-fourth of the pre-

scribed quantity of resin and oil, without previously melting together, and that the metal was rapidly extinguished. The remainder of the resin and oil was melted with the plaster, and the whole added to the mercury after it had been sufficiently triturated.

March 4th, 1844.

Professor BRIDGES in the Chair.

The last minutes were read and adopted.

The Report of the Committee having in charge the communication of Edward Parrish on Syrup of Chamomile, was read and adopted, the report being in favor of the publication of the formula.

A specimen of Syrup of Manna was presented by Augustine Duhamel. It was made by dissolving five ounces of manna and sixteen ounces of sugar in sufficient water, and by boiling to make a syrup of 32° Baumé when cold. It has been employed by several German practitioners as a mild laxative for children.

Dr. Carson made some remarks respecting a specimen of Catechu in his possession, which agreed with the description in the books, of the variety known as "*Catechu in quadrangular cakes.*" It is in irregular cubical masses, light brown color externally, and buff internally. It has a marked astringent taste, but is evidently an inferior variety. It was referred to Augustine Duhamel, J. H. Ecky, and William Procter, Jr., for examination.

April 1st, 1844.

Professor CARSON in the Chair.

The minutes of the last meeting were read and adopted.

A communication from John H. Ecky, on the Extract of Seneka and Squill, with instruction for preparing Compound Syrup of Squill, was read. It was accompanied by a specimen of the extract, and was referred for consideration to Charles Ellis and Thomas P. James.

An interesting discussion ensued as to the relative merits

of honey and sugar as vehicles in the preparation of Compound Syrup of Squill.

Dr. Carson made some observations on the plant called "matico," from Upper Peru, and contributed a specimen. The plant has the characteristics of a Piper. It is used in dressing wounds as a hemostatic application, and from the benefit in such cases has acquired the appellation of "soldiers' weed." Dr. Ruschenberger, who first brought it to the United States, has employed it in the Naval Hospital at Brooklyn, as a stimulating and styptic application locally, in several external subacute inflammatory affections, as well as internally, and, he states, with advantage.

At a meeting of the Philadelphia College of Pharmacy, held April 15th, 1844, the following Officers were elected for the ensuing year:—

President.

DANIEL B. SMITH.

1st Vice President.

CHARLES ELLIS.

2d Vice President.

ELIAS DURAND.

Treasurer.

JOSEPH C. TURNPENNY.

Secretary.

DILLWYN PARRISH.

Corresponding Secretary.

WILLIAM HODGSON, JR.

Trustees.

DR. JOSEPH CARSON,	WARDER MORRIS,
W. W. MOORE,	EDWARD PARRISH,
JOHN H. ECKY,	JAMES L. ELLIOTT,
WILLIAM PROCTER, JR.	RICHARD W. TEST,

Publishing Committee.

CHARLES ELLIS,	AMBROSE SMITH,
WM. PROCTER, JR.	THOMAS P. JAMES,
A. DUHAMEL,	DR. JOSEPH CARSON,
DR. ROBERT BRIDGES,	

MISCELLANY.

On the constituents of Canella Alba. By MEYERS AND REICHE.—This bark contains about eight per cent. of *mannite*, which may be readily separated from the aqueous bitter extract by means of alcohol. Starch and many salts remain undissolved. The ashes of the bark amount to 6 per cent., and contain 86 per cent. of carbonate of lime, 4 per cent. of potash, and 1.2 per cent. of soda, a small portion of magnesia, peroxide of iron, protoxide of manganese, alumina, chlorine, sulphuric and phosphoric acids, and silica. The most interesting constituent is the *volatile oil*, 12 drachms of which were obtained by the distillation of 10lbs of bark. This oil is specifically lighter than water, but a portion of it is observed to sink. If the crude oil be shaken together with a solution of potash, diluted with water and subjected to distillation, a light oil passes over first, and subsequently a heavier one. The *heavy oil* has a peculiar odour, does not enter into combination with potash, and contains 73.7 carbon, 10.7 hydrogen, and 15.6 oxygen. On filtering the solution of potash from which the oil was distilled, neutralizing it with dilute sulphuric acid, and again subjecting it to distillation, a small quantity of the heavy oil passed over, and was readily recognised by the peculiar odour, analogous to that of the oil of cloves. The *light oil*, which constitutes the chief bulk of the volatile oil, resembles the oil of cajeputi in odour. It was distilled in separate portions. The oil which passed over at 356° Fahr., contained 75.25 carbon, 11.28 hydrogen, and 13.46 oxygen. A portion distilled slowly at 326° Fahr., yielded 79.12—79.09 carbon, 12.58—11.71 hydrogen. Finally, the portion which passed over at last, bore the most striking resemblance to the oil of cajeputi, boiled at 473° Fahr. and had a specific weight=0.941, contained 80.56—80.52 carbon, and 10.66—10.88 hydrogen.—*Lond. Pharm. Journ. from Annalen der Chemie und Pharmacie.*

On the volatile oil of Pinus Abies. (Norway Spruce Fir.) By GOTTSCHALK.—It is a well-known fact that a forest of Norway spruce fir-trees by no means diffuses the odour of the oil of turpentine, nor has any one yet succeeded in obtaining resin artificially from that oil. The tree contains, perhaps, an oil differing from, but capable of being converted into, the oil of turpentine; it is also probable that the stem of the tree and its root contain different oils. Gottschalk, on Wöhler's suggestion, dis-

tilled the young twigs of the *Pinus Abies*, deprived of their leaflets, with water. He obtained a thin colorless oil, which boiled at 320° Fahr., and diffused the odour of the young leaves of the Norway spruce fir-tree; it became, on exposure to the air, soon resinous, and was not changed on distillation with a moderately strong solution of potash. Distilled with crystallized fused hydrate of potash, it assumed the odour of oil of turpentine, and the potash then contained resin. The rough anhydrous oil consists of 87.07 carbon, and 11.89 hydrogen; a portion distilled separately yielded 87.4 carbon, and 11.77 hydrogen. It therefore consists of a large proportion of oil free from oxygen, and of an oil containing but little oxygen. Potassium disengages but little oxygen from it, and then maintains its metallic lustre. A small quantity of a brownish substance is formed. The oil, after this treatment, has a more agreeable odour resembling the oil of lemons or oranges; it is fluid, burns with a bright flame, and has a specific weight 0.850 at 68° Fahr.; it boils at 332° , absorbs much muriatic acid, but does not enter into any solid combination at 32° Fahr., and consists then of 88.38 carbon, and 11.78 hydrogen, like the oil of turpentine.—*Ibid from Ibid.*

On the composition of the Oil of Horse-Radish. (Oleum armoracix.) By CARL HUBATEK.—The root of the horse-radish was cut into thin slices, and distilled several times with water; 100 pounds of the root yielded from five to seven drachms of volatile oil.

When pure, the oil has a specific weight=1.01; and is of pungent odour, resembling the oil of mustard. It acts powerfully as a local irritant, reddening the skin to which it is applied; it is soluble in spirit and ether, but slightly so in water. Chlorine changes the oil into a thick dark mass, with the development of muriatic acid, sulphur, and chlorine. Treated with alcohol, a viscid mass remains with the odour of melted sulphur. Concentrated nitric acid reacts very powerfully on the oil forming nitro-sinapylic resin. Liquid sulphuric acid has a powerful reaction with it, developing sulphurous acid. With ammonia, it forms a white crystalline combination, like the oil of mustard. Digested with fresh oxide of lead, and evaporated in a water-bath, sulphate of lead is obtained, and a substance resembling sinapoline. In odour, specific weight and reaction, the oil of horse-radish bears so strong a resemblance to the oil of mustard, that analysis could but corroborate their identity.

0.3328 grains of oil of horse-radish gave,

Carbon 0.5858, and water 0.1575.

This would correspond with the composition of the oil of mustard, which is,

Atoms.	In 100 parts.	
	Calculated.	Found.
8 Carbon	606.83 . .	48.60 . . 48.41
5 Hydrogen	62.40 . .	5.00 . . 5.26
1 Nitrogen	177.04 . .	14.18
2 Sulphur	402.33 . .	32.82

1 Atom of oil of mustard = 1248.60 . . 100.00

The combination with ammonia yielded on analysis the following results :

First: 0.5923 grains of oil of horse-radish, 0.883 grains carbon, and 0.377 grains water.

Secondly: 0.663 grains of oil of horse-radish, 0.989 grains carbon, and 0.413 grains water.

The combination with ammonia, therefore, corresponds in composition with that of the oil of mustard, and the two oils may be considered as identical. It is singular that man should have selected horse-radish and mustard as condiments, on account of their analogy in taste, as he also thus detected the analogy between tea and coffee.—*Ibid from Ibid.*

On the frequent occurrence of Lead in Cochineal.—M. Dietrich, in a letter to Prof. Wöhler, mentions his having received a parcel of cochineal, which in appearance left nothing to be desired as to quality, but which had nevertheless been subjected to a gross sophistication. The white coating, for instance, was artificial and contained so many granules of lead that they amounted to nearly 12 per cent in weight. When the mixture was reduced to a very fine powder, and then carefully suspended, a bright metal remained behind. Since cochineal is frequently employed by pastry-cooks the sophistication is highly dangerous: and this adulteration appears now to be very generally adopted, for all the samples of cochineal which the author examined proved to contain lead. *Chem. Gaz. from Archiv. der Pharm.*

Extemporaneous Vesicant. By DR. DARCQ.—Into a flat watch glass, pour from 8 to 10 drops of very concentrated ammonia; cover the liquid with a large piece of linen on a rather less diameter than that of the glass, and slowly apply this little apparatus to the previously sheaved skin. Keep the whole in its place by means of moderate pressure with the fingers.

As soon as a red ring, about 2 centimetres in breadth, is observed round the glass, it is certain that vesication is effected. Sometimes scarcely

30 seconds are necessary for obtaining this result. It remains only to remove the apparatus, to wash the part, and to tear away with a pair of nippers the epidermis, which comes off easily and in one piece.

The dressing is according to the object in view,—to the indications of the endermic method for example.—*Chemist from Bull. de Therap.*

Preparation of Syrup of Gentian. By M. E. TAUVEL.—Syrup of Gentian prepared according to the Codex, loses its transparency a few days after its preparation, and becomes very turbid after some time. This syrup, already disagreeable to take on account of its great bitterness, is still more repugnant to the patient, because it has not that agreeable aspect to the eye which seems to contribute greatly to ameliorating its bad taste.

With the view of obtaining a syrup of gentian which retains its transparency without its medicinal properties being weakened, I have adopted the following process for above a year, and it always gives a good product: I have preserved the proportions of the Codex:—

Gentian Root in coarse powder	48 grams.
Cold water	qs.
Simple Syrup	1,500 "

The gentian is lixiviated in the displacement apparatus with a sufficient quantity of cold water; the operation is stopped as soon as the liquid which flows out appears less *charged*. The liquor is filtered and briskly mixed with the boiling syrup brought to such a consistence that, the liquor being added to the syrup, the latter marks 30° of the areometer.

By this process, syrup of gentian retains its transparency for an indefinite period: it is quite as bitter, and more aromatic, and possesses more odour than that of the Codex. I have some which has been prepared more than six months, which is as limpid as on the first day.

I have made it comparatively—1st, according to the Codex; 2d, with extract; 3d, by the method which I point out. That of the Codex presents the objection already noticed, that of becoming turbid. That mode with extract preserves its liquidity, but it is less odorous than the two others. I need not repeat what I have said concerning the third.

It is known that gentian root is a substance which very difficultly yields to lixiviation, on account of its viscosity; but with a few precautions, by sifting the powder very finely, the difficulties are easily overcome.—*Chemist.*

Employment of Chloride of Zinc in Toothache. By Dr. STANELLI.—According to Dr. Stanelli, the chloride of zinc, liquified by exposure to the air, possesses the property of calming dental pains.

His mode of application is most simple. By means of a small hair pencil, a small quantity of it is applied to the cavity of the painful tooth, and in the space of a few minutes it appeases the most acute sufferings, without causing any irritation.

Before proceeding to the application, it is indispensable carefully to surround with cotton wadding, and, when the chloride has been applied, to well fill the cavity with this same cotton. The mouth is finally washed with a little warm water.

The author affirms that he has obtained uniform success from this means in more than fifty cases, and that he has never observed the progress of the caries rendered more active by it.—*Chemist, from Annali Univ. de Med.*

Case of Ergotism. By JAMES B. THOMPSON, M.D.—This disease, if disease it may be called, is often met with amongst the natives of the western coast of Africa. It was remarkably well marked in the following case:—

The subject was a lad of about eighteen years of age, servant to the brother of Governor Rankin, then residing at the Gambia. It was observed, that whenever this boy was in the act of brushing the flies and mosquitos from his master while at dinner, he dropped off into an apparently sound sleep, and remained fixed in his then position. He was often noticed to do the same, when about to get anything from off the side-board, or in opening a closet in the dining-room. It was often amusing, indeed, most laughable, to behold him during this period of somnolency. He was not unlike a person going about the house in his sleep. Indeed, there seems to be some analogy between this affection and that of a confirmed somnambulist; but the former cases are more generally followed by serious, sometimes fatal consequences, after a period of years has elapsed. It would appear as if the circulation in the brain was much engaged; death, in such cases, mostly terminating in a form of asphyxia apoplexy. I am not aware that autopsies have thrown any light as yet on the subject; nor do I imagine we are as yet in possession of the most judicious treatment for such anomalous cases.—*Ibid, from Med. Gaz.*

Method of Removing Marking Ink from Linen. By Dr. BOETTGER.—I recollect having read some time ago, in a chemical or polytechnical paper, an essay in reference to the foregoing question, in which the use

of aqua regia was recommended ; but, besides that this powerful agent will hardly ever generally be employed by the female sex for the removal of names and figures from fine cambric, lawn, and linen handkerchiefs, a doubt as to its efficacy can hardly be suppressed ; but not having had an opportunity of putting this method to the test, I abstain from giving any contrary decision, and at once proceed to communicate a means producing the effect with certainty, at the same time in no way injuring the materials, which will be interesting to many and principally to chemists.

The substance to be employed consists simply of a somewhat concentrated solution of the cyanide of potassium of Liebig.

Here I may be allowed to remark that the pure cyanide of potassium employed to form this salt must be free from sulphate of potassa, in order wholly to prevent the formation of a combination with sulphur during the calcination, which might interfere with the object in view. The said precaution in forming the cyanide of potassium should never be lost sight of by those who make gold or silver solutions.

Writings made with chemical marking-ink on white bodies, table linen, towels, &c., of some years' standing, were in a very short time removed by gently rubbing the materials with a somewhat concentrated solution of cyanide of potassium, no injury whatever being perceptible even in the finest fabric. If a little common writing-ink enter into the composition of marking-ink (which sometimes is done with the intention of improving the freshly made figures,) then, in addition to that, the spot or figure to be removed must afterwards be treated with a hot concentrated solution of oxalic acid.

The black and reddish spots produced on the skin by solutions of gold and silver, are also in the same manner easily removed by the before mentioned saline solution.—*Ibid*, from *Ann. der Chem. und Pharm.*